IDG.net

A NEW COURSE

IT-intensive strategy steers venerable State Street Bank in a new direction. Page 52

GET ME OUTTA HERE!

Low staffing, long hours, high stress. Time off tops IT workers' benefit wish list. Page 54

WRAPPING UP Y2K

Packaged food vendors say they're ready. Now they're sending out agents to check on suppliers. Page 45

COMPUTERWORLD

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FEBRUARY 15, 1999 ▪ VOL. 33 ▪ NO. 7 ▪ $4 COPY

USERS BUY IN TO SOFTWARE RENTALS

IT labor shortage, cost savings drive interest

BY JULIA KING

Judging from the way both big-gun and small-fry vendors are hurling their hats into the ring, the market for software rentals is about to explode.

For users, that could mean dramatically lower and more predictable costs, much faster access to new applications and far fewer administrative headaches. It also could help ease the impact of both the labor crunch and IT's preoccupation with the year 2000 problem — sometimes to the exclusion of other technology needs.

"I think departmental and individual managers who are lining up for resources from IT and are being forced to wait are going to start turning to applications services providers and just renting what they want. This is already happening with hosted Web sites," said Phil Wainewright, editor of "ASP News Review," a newsletter based in London that has tracked the software rental market since last fall.

AT A GLANCE

- **What do ASPs do?** Applications services providers, or software rental services, buy the license
- **What do users do?** Users rent software via the Internet or a private network and pay a monthly per-user or by-transaction fee

Last week, Microsoft Corp. confirmed that it will begin test rentals of its server-based products within the next six to 12 months. "It's

Software Rentals, page 16

RETAILER COMMITS TO LINUX IN 250 STORES

Burlington Coat a big win for shareware OS; user sees better price, performance than NT

BY DAVID ORENSTEIN

Burlington Coat Factory Warehouse Corp.'s plan to run its stores on Linux may make users give real consideration to the shareware Unix operating system.

But then again, maybe not. After all, the retailer's infrastructure and culture are particularly well-suited to take it where many other companies fear to tread (see story, page 97).

CIO Mike Prince: "The developers cheered"

The $1 million-plus deployment at the $1.8 billion Burlington, N.J., discounter is the largest Linux retail installation announced by a U.S. company. "We're pumped," said CIO Mike Prince. "We finally made the business decision, and all the developers cheered."

Over the next 12 to 18 months, Burlington will install Linux on 1,150 computers in its 250 stores, Prince said. "Linux has come along so strongly, and the price of Intel PCs has dropped so much . . . [that it] is attractive from both a price and performance standpoint. It's free, and it runs like the wind."

Prince said he also expects Linux to be less costly to support and maintain than NT, which he said is less stable.

Retailer, page 97

HITACHI SKYLINE COULD DOUBLE RIVALS' SPEEDS

BY JAIKUMAR VIJAYAN

Big iron is getting a lot bigger.

Pumping it up is mainframe maker Hitachi Data Systems Inc., which later this month will unveil a next-generation Skyline system that should offer roughly double the performance of its rivals' current top-of-the line systems. Hitachi officials declined to comment.

The new Hitachi mainframe, called Trinium, will of-

Hitachi, page 97

OWENS CORNING CIO David Johns wants reason to win out in the Microsoft case. The government should prohibit exclusionary licenses, he says

ANTITRUST AFTERMATH

MICROSOFT TRIAL

YES, 18 WEEKS AFTER it began, the Microsoft antitrust trial is dragging on. But pay attention. If the government proves its case, the results could reshape the software industry and change the way IT managers buy PC software. CIOs say they're leery of government regulation of the industry, but many would like to see pro-competitive contract changes and an official ruling that Microsoft is indeed a monopolist that must play by different rules. This week *Computerworld* senior editor Kim S. Nash looks ahead at how the historic trial could change the lives of IT buyers.

See report on page 24

EDS, MCI SWAP OUTSOURCING

Pact boosts E-commerce and expands services

BY STACY COLLETT

Customers of Electronic Data Systems Corp. will see expanded electronic business offerings as a result of its $17 billion outsourcing swap last week with telecommunications giant MCI WorldCom Inc.

"We haven't grabbed a lot of space in the area of E-business, but we're working on it" through this deal, said Dick

EDS and MCI, page 16

NEWSPAPER

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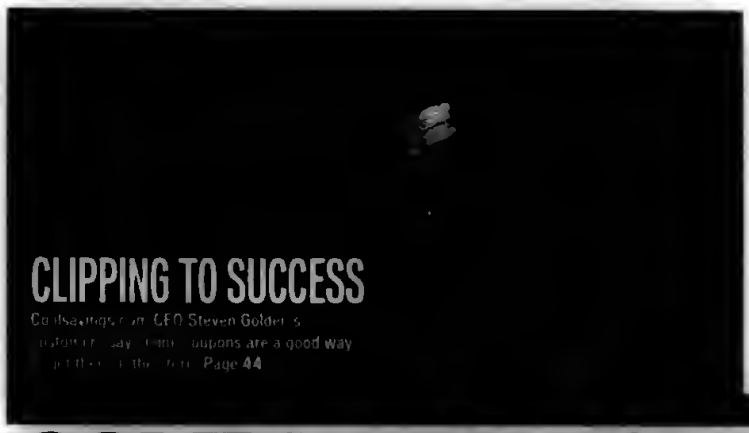

CLIPPING TO SUCCESS

Coolsavings.com CEO Steven Golden's customers say [illegible] coupons are a good way [illegible] Page 44

FLASHBACK

1955 saw the death of a Hollywood icon and the birth of computer user groups. Page 69

COMPUTERWORLD

FEBRUARY 15-21, 1999

NEWS 4

4 **SERVICE MERCHANDISE** plans IT layoffs but continues with automation projects.

6 **SEC THREATENS** to crack down on skimpy Y2K reports.

8 **EMERY OVERHAULS IT** to streamline its business with new CIO at the wheel.

10 **MICROSOFT READIES** distributed computing plan to tie manufacturing systems to ERP.

12 **MICROSOFT CONSIDERS** customer-focused reorg; continues to slip up in court.

12 **INTEL PROTESTS** widening of antitrust investigation, but judge allows it.

14 **CARMAKERS REV** sales information packages to make dealers more effective.

16 **FREE E-MAIL POSES** security risk, lacking safeguards of most mail systems.

20 **ELEVEN NATIONS** unite to promote year 2000 readiness.

OPINION

33 **IT PLAYS** a central role in global economic development, David Moschella writes.

34 **TECHIES SHINE** in business roles, so stop whining and enjoy it, John Gantz advises.

MORE

Company Index 96
Editorial Letters 32
How to Contact CW 96
Inside Lines 98
Stock Ticker 95

BUSINESS 39

40 **MEMBERS FLEE** from Help Desk Institute, seeking groups with better service.

41 **ANALYSTS OFFER** strategies to keep a handle on proliferating handhelds.

42 **JAIL BUILDS** prisoner database to keep a lid on trouble.

E-COMMERCE

44 **WEB COUPONS PROVE** an efficient way for some retailers to reach customers.

YEAR 2000

45 **FOOD MAKERS FEEL** confident in their preparedness; now they're checking suppliers.

45 **U.S. Y2K CZAR TALKS** about helping Russia and shippers prepare for Jan. 1, 2000.

46 **HATE YOUR JOB?** Career counselor offers tips for jumping ship.

48 **MANAGERS GET MORE** than just good work out of new IT people who are brought up to speed fast.

OPINION

49 **Y2K THREATENS** to end tons of business relationships this year, Ed Yourdon warns.

54 **WORKERS SAY** time off is the best perk, but employers keep asking for overtime.

56 **TEN TIPS** on how to get your boss to give you a raise now.

56 **NICHE PLAYERS** provide special benefits over larger players, Joe Auer writes.

TECHNOLOGY 61

SOFTWARE

62 **ANALYSTS WARN** that NT limitations may hobble ERP apps on SQL Server 7.0.

62 **REVAMP OF MICROSOFT** SMS aimed at boosting distribution, inventory capabilities.

63 **EMERGING XML** servers could improve data exchange for IT.

HARDWARE

64 **CAPACITY PLANNING** wins converts seeking to break free of endless server upgrades.

NETWORKS

65 **STRONGER STANDARDS**, low price may jump-start demand for Internet VPNs.

65 **NORTEL TOOLS** help IT manage WAN and LAN devices from one desktop.

66 **KELLY SERVICES** selects server-based antivirus technology, finds early success.

68 **WE LOOK AT** wireless E-mail options (and drawbacks) for the exec on the go.

OPINION

74 **OUR FANCY METRICS** aren't working, Frank Hayes writes. To find out how your projects are doing, apply Alan Turing's simple rule.

76 **DESPERATE Y2K** times call for desperate measures: a triage guide.

82 **NOTHING COULD** be "finah" than to be seeking an IT job in North Carolina.

GIVEN A CHOICE, I WOULD RATHER CHOOSE TO HAVE MY LEG BITTEN OFF THAN TO BUY NT.

ROB NARBERES, IS MANAGER, DNA PLANT TECHNOLOGIES CORP., WHO IS USING LINUX TO IMPLEMENT A FINEWALL. SEE PAGE 97.

BRIEFS

AOL Filing Reveals $8M Year 2000 Bill

In a year 2000 disclosure to the Securities and Exchange Commission, America Online Inc. revealed that it expects to spend about $8 million to get itself ready for the date change. Though Dulles, Va.-based AOL said it expects its proprietary software to be clean, it added that it has received few responses from business partners and can't guarantee full year 2000 readiness.

Dell, Insurer Ink $7M Deal for Laptops

Dell Computer Corp. in Round Rock, Texas, sold $7 million in Latitude laptops online to Norwest Mortgage Inc. in Des Moines, Iowa, a mortgage and financial services company. Norwest will issue the 4,500 laptops to salespeople at 50 locations nationwide.

Survey Respondents Get Office 2000

Microsoft Corp. is rewarding customers who take an extensive survey on Office 2000 with a choice of a free copy of Office 2000 Premium or other products.

J. D. Edwards Issues Warning

J. D. Edwards & Co. is the latest enterprise resource planning vendor to feel the squeeze of lower-than-expected revenues. The Denver-based company said it expects revenue for its quarter ended Jan. 31 to be below estimates in part because users were focused on year 2000 fixes.

Short Takes

PLATINUM SOFTWARE CORP., an application vendor in Irvine, Calif., has agreed to change its name this year to settle a suit filed by Platinum Technology Inc. in Oakbrook Terrace, Ill. . . . Hewlett-Packard Co. and IBM plan to upgrade most of their corporate desktop PCs with Pentium III processors when the Intel Corp. chip is available Feb. 26.

UTILITY PLUGS IN CUSTOMER SYSTEM

Pacific Gas responds to deregulation

BY JULIA KING

IF THE THIRD TIME around is truly a charm, Pacific Gas & Electric Co. (PG&E) will have a new customer information system serving all of its 13 million customers by early 2002.

After starting and scrapping two different projects to build a proprietary customer information system (CIS), the San Francisco-based utility now is implementing SPL Worldgroup Inc.'s CIS Plus software. The 300-person project, valued at more than $20 million, will be executed in several phases, the first of which carries a July deadline.

Under California's deregulation rules, that's the date by which PG&E must begin to calculate new rates for electricity that may be generated by competitors but is still transmitted and billed to customers by PG&E.

PG&E's plan is to convert customers to the new system in chunks, beginning with large industrial and commercial customers and ending with residential consumers.

DAMIEN BROOKS: We'll use the new CIS software for all customers

"This will give us time to work without taking on huge numbers all at once. Eventually, we'll use the new CIS software for all customers but work out any bugs before reaching the residential market," said Damien Brooks, the utility's CIS manager.

UtiliCorp United Inc. in Kansas City, Mo., another SPL Worldgroup user, whose project began 18 months ago, also has used a phased approach. So far, it has migrated about 800,000 of its more than 1 million customers to the new system, according to Julian Brandes, executive vice president of San Francisco-based SPL's global consulting practice.

PG&E's CIS project follows two abandoned efforts to build its own in-house system, first in conjunction with Andersen Consulting and later with IBM. In both cases, the technology under consideration wouldn't have supported the billing capabilities PG&E must have to operate in a deregulated environment, Brooks said.

"This is hopefully the final evolution of that story," he said.

Yet David Cain, manager of customer care and billing at the Electric Power Research Institute's Customer Systems Group, a consultancy in Palo Alto, Calif., said he isn't so sure.

"The interesting thing about deregulation and competition is that you can focus on one and forget about the other. The near-term objective of many utilities is to meet a date to get into compliance with regulatory rules, but the potential hazard is forgetting about the competition," Cain said.

Cain said he believes that SPL's software will indeed enable PG&E to meet its regulatory requirements. But ultimately, all utilities will need customer systems that are even more flexible so they can easily be integrated with sales, marketing and other business systems, as well as the Internet. ◗

Service Merchandise to Shut 134 Stores, Lay Off IT Staffers

May business plan outlines cost savings

BY STACY COLLETT

Information technology staff layoffs are inevitable at Service Merchandise Co., a catalog showroom chain that plans to close 134 stores during the next three to four months.

"I expect we'll be downsizing after stores close, but I don't know by how much at this stage," said Ken Brame, senior vice president and CIO. Service Merchandise's IT department employs 272 full-time workers.

The job cuts couldn't come at a worse time. Industry watchers said major IT projects are critical to Service Merchandise's metamorphosis from a catalog showroom to a more conventional retail store.

"Those systems have to be re-engineered, or there is no business. The trick now is money is limited. Also, this is the time when you really can't afford to lose your best people. You need top-flight business analysts and project leaders," said Brian Hume, president of retail consulting firm Martec International Inc. in Atlanta.

Service Merchandise is scheduled to release a business plan in mid-May that will outline staff cuts and other cost-saving measures.

Service Merchandise sales have been on a downward slide for more than a year. The company closed 60 stores and shut down its catalog showroom business in 1997. It reported a $38 million net loss for its third quarter last year, compared with a $25 million loss for the same period in 1997.

Brame insists the company's four main IT projects, many of which promise one-year returns on investment, will continue, but a few smaller projects likely will be killed.

Service Merchandise, based in Brentwood, Tenn., is rolling out an in-house system that handles register-related functions and handheld technology for taking inventory.

Ongoing Projects

The rollout should be completed at the 213 remaining stores by May. The company also is implementing an "assortment planning" system from MarketMax Inc. in Danvers, Mass., that determines what products will be sold in each store.

Service Merchandise is reviewing vendors for a new warehouse management system, which is scheduled to be implemented in April 2000. The company also will continue to enhance its Web site (*www.servicemerchandise.com*), which offers direct sales.

One project likely to be canned is a gift-certificate payment system for mail-order transactions. Other projects with low return on investment will follow. ◗

IBM Readies Selective Outsourcing

BY BOB WALLACE

Outsourcing powerhouse IBM Global Services next week will announce a program through which it will team with users' information technology departments to tackle and solve network and systems management problems.

Although the vendor already provides outsourcing to users where it handles everything, its new "selective outsourcing" combines the power of user IT staffs with IBM Global Services experts.

The program is expected to cover IBM and other vendors' products managed by IBM systems. But IBM's Tivoli Systems Inc. network management unit will not initially be covered under the program, an IBM spokeswoman said.

The U.S. market for discrete network management and monitoring the service market is projected to grow from $2.43 billion last year to $4.69 billion in 2002, according to International Data Corp. in Framingham, Mass. That represents about an 18% average annual growth rate. ◗

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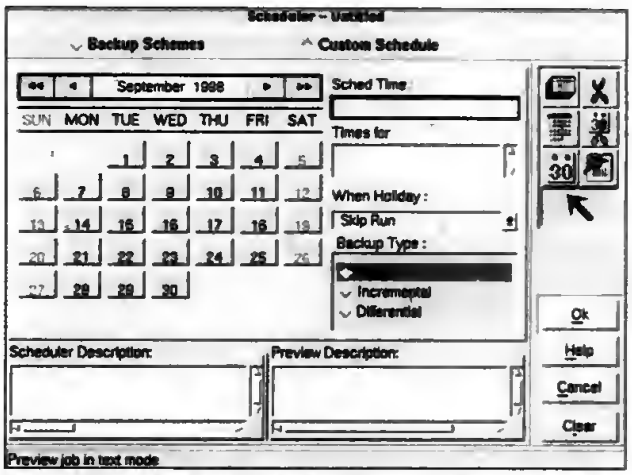

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SEC THREATENS ACTION ON SKIMPY Y2K FILINGS

Is agency's bark worse than its bite?

BY THOMAS HOFFMAN AND CRAIG STEDMAN

THE SECURITIES and Exchange Commission (SEC) last week said it's dissatisfied with the amount of information public companies are disclosing about their year 2000 costs and potential business liabilities. But the agency sent out mixed messages about whether it will take action against companies that aren't forthcoming.

On the one hand, Laura S. Unger, the commissioner in charge of the agency's year 2000 efforts, said the SEC is planning to start to take action against wayward companies. But she also said the agency hasn't yet identified any companies it plans to penalize.

For example, the SEC might step in if it discovered that a company's filings didn't include year 2000 information that was disclosed elsewhere, Unger said. "I can't speak for our enforcement division, but as a commissioner I would absolutely authorize [taking action on] something like that," she said.

The SEC is empowered to issue court injunctions or fine uncooperative companies $5,000 to $50,000, depending upon the violations. Yet Unger said it's unlikely that the SEC would censure public companies or take direct actions against corporate officers.

That's despite an SEC review of year 2000 disclosures by 400 companies in last year's third quarter that revealed half had failed to outline how much they were spending on their projects. That maps with a recent *Computerworld* investigation that found most companies are continuing to file skimpy disclosure statements [C.W. Feb. 1]. A separate SEC survey found that 1,200 companies failed to make any disclosures at all. Roughly half of the 400 10-Q and other third-quarter reports reviewed by the SEC contained no information about the backup plans demanded by the agency since tightening its disclosure requirements last July. But Unger and industry experts predict companies will be more forthcoming about disclosing their backup plans now that they're beginning to address that part of the puzzle.

Lawyers who work with companies on year 2000 issues said the SEC's disclosure guidelines should be taken seriously. Even if the agency doesn't come down hard on companies that don't comply, those businesses could leave themselves open to lawsuits by disgruntled shareholders, the lawyers said.

"I don't think the SEC is going to go after companies in a formal sense," said Greg Cirillo, a partner in the Washington office of the law firm Williams, Mullen, Christian & Dobbins. "But [shareholder] suits are the bigger stick. And there's no way to read the SEC's guidelines and then not make a disclosure." ▶

> I don't think the SEC is going to go after companies in a formal sense.
>
> GREG CIRILLO, WILLIAMS, MULLEN, CHRISTIAN & DOBBINS

Win 2000's Dirty Secret: Most Applications Must Be Rebuilt

Microsoft trying to ease migration

BY SHARON GAUDIN

The mostly new code in Windows 2000 makes it such a different beast than its NT 4.0 predecessor that corporate developers had better brace themselves: Most of their existing applications will have to be rebuilt, or at least revised, to make them compliant.

The issue isn't the stability of the current Windows 2000 beta. Even if the code in the final release of Windows 2000 is completely bug-free, many applications that run on NT 4.0 simply won't be able to use the new features, such as Active Directory or COM+, available in the upgraded operating system. "Eighty percent of the code in Windows 2000 is new," said Daniel Kusnetzky, an analyst at International Data Corp. in Framingham, Mass. "If that's not a new operating system, I'm not sure what is. With the Windows platform, each migration from one version to the next has been tough. This will be tougher."

Of course, there also are bugs in the early release of the Windows 2000 Beta 3 code that are causing some application incompatibility problems.

"That doesn't surprise me, with 25 million lines of new code," said Joo Oltsik, an analyst at Forrester Research Inc. in Cambridge. "That's what betas are for. Fixing them might further delay an already late piece of software.... The trade-off, though, is going to be if Windows 2000 is worth all the trouble of messing with all those applications."

New Features Are Problem

Karan Khanna, Microsoft's lead product manager for NT Server, explained that applications that run under NT 4.0 will run under Windows 2000 if they don't access the new features.

But if information technology managers want to take advantage of the reasons companies want to buy in to Windows 2000, such as public-key security and the new directory, then they will have to change those applications.

Khanna said Microsoft is trying to ease that workload by building some of the changes into the application programming interfaces (API) so developers can write to the APIs instead of building the coding into the applications.

But John Scannello, director of IT planning at Consolidated Edison of New York Inc., said he thinks his developers still have a lot of work ahead of them. "That will be a big negative," Scannello said. "The thought of rewriting applications is not something a large company wants to deal with. If it's one or two applications, that would be one thing. I don't know how we'll deal with something bigger."

JUST THE FACTS

Code Monster

Windows 2000 has a burgeoning number of lines of code. Here's how it stacks up against other operating systems:

NetWare: 5M to 10M lines	
Unix: 6M to 10M lines	
MVS: 30M lines	
Windows NT 4.0: 15M lines	
Windows 2000: 35M to 40M lines	

Isaac Applbaum, senior vice president at Concord, Calif.-based Concorde Solutions, a subsidiary of Bank of America, said he will probably deal with it by devoting some developers to the task of bringing their custom applications into Windows 2000 compliance.

"It's going to be a bigger job than expected," he said. "I can tell you that we won't be an early adopter. When someone tells you there will be 80% new code, I can tell them we'll be on the careful side." ▶

Microsoft Teases Knowledge Management

BY ROBERTA FUSARO

Some details of Microsoft Corp.'s knowledge management strategy are starting to seep out. The company floated knowledge management trial balloons last year at its Exchange conference and at a technical conference in Europe that introduced elements of its strategy: collaboration, publishing, search, tracking, workflow and data analysis.

Sources close to Microsoft said it's developing a knowledge management architecture under the code-name Tahoe.

Based on Microsoft's Site Server 3.0, Tahoe will include document management and workflow features such as search capabilities, Extensible Markup Language tagging and support, and document versioning.

The project also would include a "portal" component.

Analysts said Microsoft faces strong competitive pressure from IBM subsidiary Lotus Development Corp. to deliver on a knowledge management strategy. Rival Lotus has positioned its Lotus Notes and Domino groupware as frontrunners in this emerging market. Microsoft hasn't been able to deliver a strong knowledge management strategy, said Ovum Ltd. analyst Eric Woods, because it has been hamstrung by gaps among its disparate collaboration products such as Exchange Server, Site Server and Office 2000.

Gartner Group Inc. analyst Tom Austin predicts Microsoft's first knowledge management products won't ship until the end of 2001 or middle of 2002. ▶

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BRIEFS

Subaru in $34M Outsourcing Pact

Subaru of America Inc. renewed its outsourcing contract with Unisys Corp. for five years in a deal worth $34 million. Under the new contract, Subaru's data center, help desk and network operations centers will be moved from a Subaru facility in Pennsauken, N.J., to Unisys' facility in Eagan, Minn.

Free PCs, Net Access Offered - Ads Included

A California start-up is giving away 10,000 Compaq Computer Corp. Presario PCs packed with free Internet access, E-mail – and advertising based on respondents' answers to a survey. The ads are stored on hard drives and appear in a frame on the PC screen. Consumers last week jammed Free-PC Inc.'s Web site (www.freepc.com).

Surveys: Sales Staff Avoid, Ignore E-mail

In a survey of 300 auto dealerships, The Polk Co. in Detroit found that almost 75% of them haven't equipped their salespeople with E-mail – even though 90% said they could be connected to the Internet. And an informal poll of salespeople by New York-based sales training company D.E.I. Management Group indicated that 80% of 400 respondents have access to E-mail, but 64% don't use it for prospecting, and 70% don't read it immediately.

Short Takes

COMPUSA INC. is farming out application development, data center operations and implementation of a SAP AG R/3 system to IBM GLOBAL SERVICES under a seven-year, $200 million contract. . . . COREL CORP. in Ottawa has adopted anti-takeover provisions. Rival graphics vendor ADOBE SYSTEMS INC. in San Jose, Calif., denied it plans to take over Corel. . . . A bill introduced in the U.S. HOUSE OF REPRESENTATIVES would double the CUSTOMS SERVICE's budget for combating Internet child pornography to $5 million per year.

WIRELESS DATA STEPS CLOSER TO REALITY

But users wonder about costs, security

BY MATT HAMBLEN

LAST WEEK'S flurry of wireless data service announcements could mean more technical standards and wider competition that will bring costs down, corporate information technology managers said.

Four deals involving networking, telecommunications and software firms such as Cisco Systems Inc. and Microsoft Corp. reflect a move to wireless Internet access.

Still, users said companies will need thoughtful business cases for using wireless networks because service charges and synchronization software licenses will add up. "Costs could be prohibitive," said Tom Maurice, program manager at USG Corp., a Chicago maker of building products.

USG has deployed 500 Palm III handhelds from 3Com Corp.'s Palm Computing division in the past year, with many executives using them to replace laptops on shorter trips for tracking personal information and simple E-mail. Maurice said USG is tracking wireless synchronization software advances to give the Palm III greater functionality.

Maurice said he expects each handheld user to be charged a wireless synchronization software license of $100 per year, atop a monthly secure network service charge of $50. "Handhelds have been great so far because of the low cost for limited needs, but wireless costs could add up," he said.

Alex Hu, senior technology officer at The Chase Manhattan Bank Corp. in New York, said that with 70,000 users, all types of remote access are under consideration, but wireless data has a low priority. "Honestly, for banks, wireless data doesn't provide a benefit for the security risk," he said.

Analyst Gerry Purdy at Mobile Insights Inc. in Mountain View, Calif., urged IT to follow the wireless developments full time. "Be aware that wireless data is a niche today but will be mainstream in the new millennium," he said.

Big industry players getting involved in wireless also could change some minds. Michael Fouts, senior network analyst at The CIT Group, a financial services company in Livingston, N.J., prefers frame-relay for carrying financial data. But, Fouts said, Cisco's working on an IP platform could mean eliminating staff and office space needed to run his frame-relay network — if it could securely be replaced by wireless communications.

FAQ: Service Deals

What were last week's big announcements?

- Network equipment maker Cisco Systems Inc. and phone maker Motorola Inc. said they will spend $1B over four years to build an IP wireless platform for voice, video and data.
- Microsoft Corp. and British Telecommunications said they will develop wireless Internet and corporate data devices.
- Nextel Communications Inc., a nationwide wireless operator, and Netscape Communications Corp. said Netscape will develop an Internet site that Nextel customers can access for stock quotes and more.
- 3Com Corp., parent of Palm Computing Inc., spent $17.5M to buy France's Smartcode Technologie, a small developer of wireless data and Internet access software for cellular telecommunications companies.

Wasn't Microsoft already involved?

- Yes. In November, Microsoft and Qualcomm Inc. formed Wireless Knowledge LLC to create a secure wireless network. Analysts said it could compete with the Symbian alliance created earlier by cellular phone companies Psion PLC, Motorola, Ericsson AB and Nokia.

New Emery IT Czar Handed Keys to $75M Overhaul

Goal: Y2K fixes, new IT foundation

BY STEWART DECK

When Ronald Berger took the wheel as director of information systems at package shipper Emery Worldwide two weeks ago, he found himself in the middle of a $75 million technological refurbishing and makeover project.

So far, the five-year project is running fairly smoothly at the fifth-largest express carrier in the U.S., Berger said, with several new developments slated to come online during the next few months.

The 18-year Emery veteran was given the keys to the EMCON 2000 project at the $2.2 billion company, a division of CNF Transportation Inc. in Redwood City, Calif. EMCON 2000 has alternately slowed down and sped up during the past five years. Launched in 1994, the project was designed to upgrade Emery's mainframe-based systems, solve any year 2000 troubles and lay an information technology foundation in cargo operations, electronic commerce, data warehousing and sales and marketing.

The overhaul was slowed by a complete business re-engineering in 1996, Berger said. "EMCON's original concept was then changed to support some better internal processes, including making our data warehouse a centerpiece for our internal business needs," he said.

To do that, the warehouse has been redesigned to pull in more data from accounting systems and to make financial analysis and business queries simpler. "We couldn't easily extract data from some of our legacy systems, even with a fairly new data warehouse," Berger said. "When this is completed in the next three to four months, it will be faster and more efficient and allow us to do better forecasting and strategic planning."

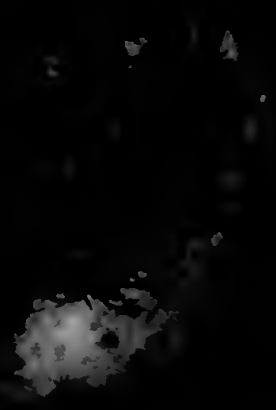
RONALD BERGER landed in the middle of Emery's five-year IT overhaul

Those abilities are vital to shipping firms such as Emery, said Warren Powell, a professor of operations research at Princeton University. "Without a rock-solid costing system you can't see where the losses are because the business is so complex. Without the ability to see that data, carriers can't survive," Powell said.

Other pieces of the EMCON 2000 project are slated to go live in the next several months. Within the next 60 days, the shipper will unveil a Web-based, package pick-up request application and by year's end will have technology in place to update package tracking as often as every 10 minutes.

One of the most complex pieces of the EMCON project — a pricing/rating application of complex business rules structures for each of Emery's customers — will be completed in April, tying all operational data to financial applications.

Powell said that Emery, like Federal Express Corp., has made a break from its trucking past. "Trucking and rail companies are traditionally conservative when it comes to trying new technology. But package delivery companies like FedEx and Emery have an airline mentality: They're willing to take some risks to try out new things," he said.



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Microsoft Zeroes in on Manufacturers Moving Toward ERP

BY CRAIG STEDMAN

Microsoft Corp. next week plans to announce a version of its distributed computing technology tailored to manufacturers that face the daunting task of tying together applications ranging from shop-floor devices to enterprise resource planning (ERP) systems.

The Windows DNA for Manufacturing bundle is supposed to provide users with plug-and-play integration of diverse corporate and plant-level systems, although analysts familiar with the Microsoft plans said the technology should work best in Windows-oriented settings.

Users such as Clorox Co. in Oakland, Calif.; Ocean Spray Cranberries Inc. in Lakeville, Mass.; and Nike Inc. in Beaverton, Ore., are expected to take part in the announcement, according to Microsoft.

A simplified way to tie together diverse applications "is kind of the Holy Grail" for manufacturers, said Jim Shepherd, an analyst at AMR Research Inc. in Boston.

JUST THE FACTS

Windows DNA

What is Windows DNA? Microsoft's technology for tying together different applications in a Windows-based network

What systems are supported? PC and Web browser clients, Windows NT application servers, NT and other back-end servers

What is the key technology in DNA? Microsoft's Component Object Model specification for distributed applications

What competes with Windows DNA? The multivendor Object Management Group's Common Object Request Broker Architecture

"You can nearly always find a way to move data back and forth, but it's a long and painful process to make them interoperate in a meaningful way," Shepherd said.

For example, users have to figure out how to filter all the data collected by shop-floor devices so the information doesn't choke their ERP systems.

Hoechst Marion Roussel Inc., a pharmaceuticals maker in Kansas City, Mo., tried to limit add-ons to its SAP R/3 system to third-party applications that came with a plug-in interface to the ERP software.

But the company still ended up developing about 160 interfaces on its own, said Gary Peteritas, SAP project manager.

For example, Hoechst Marion Roussel had to build three-way links among R/3 and the systems that manage its development laboratories and maintain the recipes used in production, Peteritas said.

Microsoft has quietly been infiltrating manufacturing plants in recent years, Shepherd said. Windows NT is now "the de facto standard" for shop-floor systems, he added, and it is becoming a credible ERP alternative to Unix.

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Microsoft Considers Reorganization Plans

Possibilities include refocusing managers on customer segments

BY KIM S. NASH

As Microsoft Corp. continues to search for a leader for its Internet group, President Steve Ballmer also is considering whether — and how — to reorganize the software company as a whole.

A Microsoft spokeswoman downplayed rumors last week that the company is close to announcing a major reorganization, saying Microsoft usually reconfigures itself once every year or two.

Ballmer is "talking to Microsoft employees" to evaluate restructuring options, she said. "If you look at the segments, they are very important customer segments to Microsoft. But it's premature to say the company will reorganize," she said.

According to published reports, one idea said to be in the works is to refocus managers on customer segments rather than technology areas.

For example, instead of today's four product-focused units — personal and business software, tools, Internet and information appliances — Microsoft would be split into teams responsible for, say, corporate customers, retail users and developers.

A sharp customer aim is in keeping with Ballmer's vow when he became president in July: to better understand what different types of buyers want [CW, July 27].

A revamp by customer segment could help stem the Microsoft "arrogance" that some information technology users have complained about, said Rob Enderle, an analyst at Giga Information Group Inc. in Santa Clara, Calif.

Splitting Microsoft along user types would mean "you'll have a vendor much more interested in helping customers get where they want to go rather than telling them where to go," Enderle said. "That has been a serious problem for Microsoft."

For example, some CIOs said they feel pressured by Microsoft to pay more for software they sometimes don't need [CW, Nov. 30]. Last summer, Microsoft merged its corporate customer and technical support groups in a bid to pay more attention to IT user needs [CW, July 27].

MICROSOFT'S Steve Ballmer wants to better understand buyers' needs

Corporate users — which Microsoft sees as its future bread and butter — have long criticized the vendor for spotty support. Microsoft's Internet group has lacked a full-time leader since Pete Higgins took an open-ended leave of absence in December; Ballmer has overseen the team in the interim.

JUDGE WIDENS WITNESS LIST IN INTEL ANTITRUST CASE

Rulings allow Micron, Data General and Harvard economist to testify

BY STACY COLLETT

DESPITE PROTESTS from Intel Corp., the Federal Trade Commission is casting a wider net of possible witnesses in its antitrust case against Intel.

In rulings that were publicly released last week, an FTC administrative law judge said executives from Micron Electronics Inc. and Data General Corp. will be allowed to testify at the trial, which is scheduled to begin March 9. Intel had filed motions to exclude witnesses outside the microprocessor market.

Also, Judge James Timony will allow Harvard University economist Frederic Scherer to present a report about Intel's role in the market for "chips, chip sets, motherboards and computers."

Intel had wanted to limit the testimony to the microprocessor market covered in the original lawsuit.

Timony also refused to remove FTC attorney Richard Parker from the case. Intel argued that Parker was biased because he had once represented Intel rival Advanced Micro Devices Inc. in litigation against Intel.

The FTC filed suit last June charging that Intel illegally used its power in the chip market to coerce three companies — Intergraph Corp., Compaq Computer Corp. and Digital Equipment Corp. — to accept technology licensing deals on Intel's terms. Intel has denied illegal activity.

In another development, the FTC reported that it recently discovered a document that detailed an Intel threat against both Micron and Silicon Graphics Inc.

The nature of the threat wasn't disclosed. Intel wanted to quash the evidence, but the judge denied that motion.

Microsoft Miscues: More Logs on the Fire

Second tape gaffe, inconsistent testimony may singe software company's defense

BY PATRICK THIBODEAU
WASHINGTON

Halfway through its witness list, Microsoft Corp.'s antitrust defense seems to be tripping on the big things.

The company last week endured yet another videotape gaffe and still another witness whose courtroom testimony didn't square with his own written record.

Whether those incidents will hurt Microsoft's case in the long run remains to be seen. But for now, they're taking a toll inside and outside the courtroom.

Mark D. Wilkins, CIO at Empire Fire & Marine Insurance Co. in Omaha, said Microsoft's credibility has suffered as a result of its videotape problems.

"It made them look a little more guilty to people on the outside looking in," Wilkins said. "The impression hurts them — but it could have been an honest mistake."

Last week, Microsoft used a videotaped demonstration in a bid to show how easily and quickly a PC with Windows 98 can connect to the Internet. It compared that to a PC with Windows 3.1. Both machines were similar, Microsoft said.

However, David Boies, the lead government attorney, asked about the modems. Were they similar?

They weren't — the Windows 98 PC had a 33.6K bit/sec. modem, whereas the Windows 3.1 PC used a 28.8K bit/sec. modem.

The performance difference between the two modems was almost inconsequential. But while Boies asked his questions, Judge Thomas Penfield Jackson had a razor-thin smile.

Two weeks ago, Jackson had cited Boies for "a very professional job" in discrediting a demonstration in which Microsoft implied that only one PC had been used. It turned out that several PCs were used in the filming.

Boies didn't dwell on the videotape with his witness, Cameron Myhrvold, vice president of Microsoft's Internet customer unit.

AT THE TRIAL

Brad Chase

Position: Microsoft vice president, Internet client and collaboration division

Testimony: Believes America Online Inc. picked Internet Explorer as its browser because it had the best technology. David Colburn, an AOL vice president, testified earlier that it was a promised Windows desktop display that clinched the deal

No-Nonsense Attorney

In court, Boies' wardrobe — a dark blue suit and knit tie — never varies. And neither does his approach to trapping a Microsoft witness: He probes for inconsistencies.

For example, Boies asked Myhrvold whether America Online Inc. and other Internet service providers that wanted to be in the Windows desktop online services folder had "to commit that 85% of the browsers they ship to customers would be [Internet Explorer]."

"That's absolutely wrong," Myhrvold said firmly.

Boies quickly handed him an E-mail that Myhrvold wrote in May 1996 that said Internet providers "will have to commit that 85% of the browsers they ship to their customers will be [Internet Explorer]."

Myhrvold, flustered, acknowledged writing the memo. Later, he backed away from his answer and said he didn't know what was in the Internet provider contracts.

The government alleges that Microsoft's contracts with Internet providers — requiring them to ship a high percentage of Internet Explorer browsers in exchange for desktop space — were an abuse of monopoly power.

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BRIEFS

E-Commerce Drives Fingerhut Buyout

Federated Department Stores Inc. in Cincinnati, parent company of Macy's and Bloomingdale's, hopes to leapfrog other retailers in electronic commerce with last week's proposed $1.7 billion buyout of Fingerhut Cos. Originally a paper-only catalog company, Fingerhut, in Minnetonka, Minn., has aggressively delved into electronic commerce. A Federated spokesman said the company won't merge operations or information technology groups.

Electronic Billing Standards Proposed

Two industry groups have developed guidelines for electronic bill presentment and payment. Developed by the National Automated Clearing House Association in Herndon, Va., and Banking Industry Technology Secretariat in Washington, the guidelines are available on the Web at *www.nacha.org/billpay/businesspractices.htm*.

Computer Grad Pay Offers Jump 7%

The spring recruiting season for new college graduates is off to a healthy start, according to a salary report issued last week by the National Association of Colleges and Employers in Bethlehem, Pa. Computer science graduates saw their average offer jump 7% from last year to $44,878, one of the highest average starting salaries reported in this survey.

Short Takes

German application vendor SAP AG last week said the General Services Administration has cleared its R/3 software for purchase by U.S. government agencies. . . . In what may be the first international year 2000 lawsuit, Brazil's Sao Paulo Football Club has filed a liability lawsuit in Sao Paulo State Court against a unit of SIEMENS AG. The soccer team alleges that a private branch exchange system it bought in 1997 needs to be fixed to handle the year 2000 date change.

HUMAN SIDE KEY TO DATA WAREHOUSING

At conference, end-user social science aspects will get their due

BY STEWART DECK

At the Data Warehousing Institute Implementation conference in Anaheim, Calif., this week, there will be plenty of technical talk about Web interfaces, repositories, packaged analytical applications and architectures. But the human side of data warehousing will share the spotlight.

In warehousing projects, social science can be as important as computer science, said Wayne Eckerson, vice president of technology services at the Data Warehousing Institute, a for-profit educational group in Gaithersburg, Md.

Unlike many information technology projects that run quietly once they're put in place, a data warehouse usually grows exponentially once it's implemented, Eckerson said. To make sure the projects have the ongoing support they need, IT managers have to make sure they keep in touch with their users and executives through team-building and quality assurance presentations, he said.

"Data warehouses are not simply IT projects because their ultimate success depends so much on the end users," said Jackie Sweeney, an analyst at International Data Corp. in Framingham, Mass.

"More data warehousing projects fail from organizational reasons than from technical reasons," said Herb Edelstein, an analyst at Two Crows Corp., a consultancy in Potomac, Md.

The conference will be far from a sociology seminar, however.

The event will also feature several sessions covering integration of data warehousing and enterprise resource planning (ERP) software. That topic garners so much interest because "ERP systems have become the big data-generators for many organizations, but they aren't particularly good at business intelligence and analysis," Edelstein said.

Eckerson said he expects sessions on data warehouse Web-connectivity to be well-attended. "Because it requires minimal training and reduces IT overhead, the Web is becoming the de facto warehouse access platform," he said. ▶

DaimlerChrysler to Link Dealer PCs to Key Data

Electronic Sales System would centralize information, speed up sales process

BY BOB WALLACE

Many automakers are testing systems designed to help their dealers speed the vehicle sales process by providing them with all the data they need at their desktop PCs.

Among them are DaimlerChrysler AG and Ford Motor Co. The former's Electronic Sales System (ESS), which is being tested, provides online access to everything from vehicle availability to sales incentives in an effort to phase out the inexact process of checking physical manuals and querying management.

"This will reduce the process [that] has had errors and takes over an hour to one that takes 15 minutes and has zero errors," said Tom Peyton, senior manager of retail technology at DaimlerChrysler.

"Salesmen will be able to get all the information they need in one place," Peyton said.

Packages such as ESS are being deployed widely in the auto industry because product information, pricing and sales incentives change frequently, making it difficult for salespeople to keep up with this paper-based information and slowing the sales process, analysts said.

ESS is being piloted in six dealerships in the first half of this year, but the automaker hasn't set a national rollout date for the package. ESS runs with other applications on dealers' current computers.

But one industry expert predicted that it will be quite a while before dealers widely use programs such as ESS.

"Although this type of system is of great benefit to dealers and consumers, adoption of most high-tech items takes years before gaining mainstream acceptance, much like the Internet in general," said Chris Denove, an analyst in J. D. Power and Associates' Agoura Hills, Calif., office.

"I'm concerned that salespeople will be reluctant to take advantage of its capabilities," Denove said.

Nonetheless, ESS offers functions that aren't supported on DaimlerChrysler's consumer Web site, Peyton said. These include checking for current factory incentives, scanning the inventory of other dealers, handling trade-ins, ordering vehicles and discussing service contracts.

Consumers won't have access to ESS.

DaimlerChrysler developed ESS with Houston-based Dealer Solutions and PBS Financial Systems in Calgary, Alberta. ▶

Age-Bias Case Settlement Offers IT Layoff Guidelines

BY BARB COLE-GOMOLSKI

A recent settlement between a computer maker and an anti-discrimination agency could set a new standard for layoff procedures in the IT industry.

Bull HN Information Systems Inc. and the Massachusetts attorney general last month settled charges that the company discriminated against older workers during layoffs in the early 1990s.

Though the settlement includes no monetary payments or admission of wrongdoing, the Billerica, Mass.-based company agreed to do the following:

- Notify former employees of new job vacancies.
- Require senior management to review all layoffs of workers over the age of 40.
- Change its internal complaint procedure for age discrimination.

"These are fairly detailed conditions," said David Lofholm, a partner in the labor and employment group of Graham & Jones LLP, a law firm in San Francisco. Lofholm said a lot of companies fail to protect themselves adequately from age discrimination complaints.

A company planning layoffs should compare the average age of its current workforce with the average age of the workforce after the layoffs, he advised. "It's also good to compare the average age of employees being laid off with the ones who are staying," Lofholm said.

If the comparison is disproportionate, make adjustments, he said.

Lofholm said companies should also have employees sign a release that says they won't sue the company for age discrimination, in exchange for a more attractive severance package. ▶

JUST THE FACTS

Older IT Workers

Top three attributes of older IT workers:

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- Discipline
- Loyalty

Base: December survey of 203 IT managers

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LACK OF LOG-IN LIMIT POSES SECURITY RISK

Free E-mail gives hackers too good a chance to guess passwords

BY ROBERTA FUSARO

MAYBE THOSE free E-mail services on the Web are too forgiving. They allow unlimited attempts for users to log in to their E-mail accounts — and that gives hackers plenty of opportunities to figure out the password that works, a security expert said last week.

But several vendors contacted by *Computerworld* said they are finding ways to fix the problem.

Most corporate E-mail systems will let a user try to log in three to five times but then lock him out and require him to contact a network administrator to gain access, said Ira Winkler, president of Information Security Advisors in Severna Park, Md.

By contrast, some free Internet mail systems — such as Yahoo Inc.'s YahooMail, Excite Inc.'s Excite Mail and Microsoft Corp.'s Hotmail — allow unlimited log-on attempts. That gives hackers multiple shots at guessing an E-mail account's password, Winkler said. And that password-cracking process could be automated, he said.

The free mail-service providers also don't notify an account holder that a hacker has been making failed log-on attempts, Winkler said. "That's just bad [security] practice," he said.

The ubiquity and easy access to free E-mail services has attracted more and more business users, Winkler said. And some companies, such as American Express Travel Related Services Co., are using free E-mail as a means of branding and attracting new customers to their Web sites.

Hotmail officials said they're working on a fix but wouldn't elaborate. A product manager for Hotmail said no E-mail accounts have been compromised in this way, and the company feels the possibility of a break-in is remote.

A spokeswoman for Yahoo in Santa Clara, Calif., said the company recently implemented new security measures to prevent multiple log-ins from invaders, but she wouldn't offer specifics. "It will lock up the account after a certain number of attempted log-ins," she said.

Excite officials in Redwood City, Calif., hadn't responded by press time to a request for comment. ▶

Continued from page 1

Users Buy In to Software Rentals

another way to provide the capabilities of our products to a different set of customer needs," said Peter Boit, general manager of worldwide volume licensing at Microsoft.

Meanwhile, smaller industry players, such as Corio Corp., FutureLink Distribution Corp. and Interliant Inc., continue to trot out new customers, who pay a monthly fee to tap into an ever-expanding variety of applications offered by the service providers that hold licenses to the software.

RESULT'S Rob Skeet: Company pays $200 per workstation for apps each month

Among them is Richard Heaps, chief operating officer at Redwood City, Calif.-based Clarent Corp., which expects to cut costs by up to 30% during the next five years by renting PeopleSoft Inc. financial and manufacturing applications from Corio.

Clarent will be up and running on the software in four months, a feat it could never have accomplished in-house with its five-person IT group, Heaps said.

By outsourcing the implementation and renting the software from Corio, "we can literally go from generation zero to state-of-the-art systems in one leap and not add anything to our overhead internally," he said.

Several users said demand for software rentals is tied directly to the IT labor shortage.

As a result, analysts said the market for software rentals should take off in the next few years, as skilled IT workers are expected to remain in short supply. Forrester Research Inc. in Cambridge, Mass., projects that the market for application rentals — which stood at zero just a few months ago — will reach $6.4 billion within two years.

For example, Result Communications Ltd. in Calgary, Alberta, turned to FutureLink for network operating software and services because it had neither the staff nor the expertise to build and maintain a complex network plus a wide range of graphics and business software, said Rob Skeet, director of new media.

So instead, Result pays a monthly fee of $200 per workstation for FutureLink to deliver both Macintosh graphics applications and Windows-based business applications over a single network. FutureLink's offering is based on technology from Citrix Systems Inc. in Fort Lauderdale, Fla., that it rents out to customers of its network services.

"The Citrix technology, which sits on top of the operating system software, lets us offer up any application over any operating system to any hardware platform," said FutureLink CEO Cam Chell.

Calgary-based FutureLink, which bills itself as a computer utility, also rents financial applications from Great Plains Software Inc. and customer management software from Onyx Corp.

In all those cases, "the most important thing happening is that ownership of software is changing. People are starting to look at software more as a service than as property," Wainewright said.

Starting Small

For now, nearly all the vendors are targeting the software rentals at midsize companies with fewer than 1,000 users. But eventually, observers expect the concept to catch on with larger companies, which also are having problems recruiting, training and retaining skilled IT workers.

"I think we'll see IT departments using rental models internally," said Robert Dana, vice president of product management at Interliant. He added that he foresees service providers hosting and supporting a company's custom applications, which they will turn around and serve up to users in exchange for a monthly or per-transaction fee.

Interliant is taking an altogether different approach from other companies in the blossoming applications services market. Rather than renting packaged software, the Houston-based service provider is serving up "a catalog of new applications that were designed to be Web-based from the beginning," Dana said.

Those include an online registry service that electronically records and verifies rights to intellectual property and project software that lets geographically scattered teams use a private Internet-based database for a monthly fee of about $15 per user.

Another vendor, Biztone.com, a Malaysian start-up, plans to offer a Java-based enterprise resource planning system designed from the start as a rental-only application. ▶

Continued from page 1

EDS and MCI Swap Outsourcing

Brown, chairman and CEO of EDS.

EDS will outsource the bulk of its global network to MCI WorldCom in a 10-year agreement valued at $6 billion to $8.5 billion.

In return, MCI WorldCom will outsource a major portion of its information technology services to EDS in a 10-year deal worth between $5 billion and $7 billion. EDS also will acquire MCI Systemhouse, the IT services arm of WorldCom, for $1.65 billion.

MCI Systemhouse delivered $1.7 billion in revenue last year but suffered from flat sales and a failure to win big-name contracts, MCI officials said.

Changes to Come

Industry watchers said MCI Systemhouse clients probably won't see changes in their service in the near term, but prospective customers will see a flurry of changes.

They "need to stop very quickly and wait for some of this chaos to die down," said Dean Davison, an analyst at Meta Group Inc. in Los Angeles. "We will see significant and very dramatic changes in the sales force, processes, pitches and messages in the next 60 to 90 days."

For existing MCI Systemhouse customers, executives plan to tap into EDS's wide-ranging in-house services.

"We will now have much more breadth," including applications and consulting experience, "things that we didn't have," said John Sidgmore, vice chairman of MCI WorldCom.

Together, the companies plan to sell networking services to business and government agencies worldwide.

EDS and MCI WorldCom officials said they will market each other's services but will let customers bring in other service providers.

As part of the agreement, 12,000 MCI WorldCom employees in the U.S. and Canada are expected to join EDS, while 1,000 EDS network employees will be offered employment at MCI WorldCom.

The outsourcing arrangements and employee transfers should be finalized by May. ▶

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Gary Fisher, Data Warehousing Manager at Sony Electronics says, "It gives everyone from senior executives to operational staff the answers they need when they need them."

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WHERE ARE THE THIN CLIENTS?

Network computers haven't stormed PCs, but IBM sees markets where they make sense

Last year was supposed to be the year of the network computer. But only half a million thin clients were shipped last year, a number industry players hoped they would see in 1997. **Edward Petrozelli**, recently appointed to head IBM's network computer division, acknowledges that thin clients haven't stormed the market but says IBM saw sales rise last year.

In an interview last week with *Computerworld* senior writers Stacy Collett and Stewart Deck, Petrozelli discussed where thin clients work and where PCs are better.

Q: *In what vertical markets are thin clients working well?*

A: We're seeing finance, security and insurance to be very early adopters and rolling out large numbers [of thin clients] because of their need to connect to the Internet. Many of their applications are spread across different servers.

Right behind that we're seeing retail and distribution. We're seeing [them] do everything from checking inventory, to linking to suppliers, to providing their own employees with access to benefits information.

Q: *Are there businesses where thin clients are not a good fit?*

A: If you're doing sophisticated CAD [computer-aided design], designing airplanes, it's probably not a good fit. Also, an environment where every end user has a different suite of personal applications [also is a mismatch].

Q: *Will customers continue opting for a mix of thin clients and PCs in 1999?*

A: Our customers are saying there is a need for both. With some of the financial institutions or insurance companies, 70% to 80% of devices may be thin clients. Others may be a 50-50 split depending on what the users are doing.

As new applications and other pervasive devices come out, there will be PCs, thin clients and some handheld devices out there that hook into the same environment.

EDWARD PETROZELLI: IBM's customers see need for both PCs, thin clients

Q: *Critics say all the software needed to run thin clients isn't available. Where is the software today?*

A: We look at thin clients as [they provide] function — access into legacy apps, on into the Internet space, moving up into being able to run Java applets. That software suite is now there. It is not dependent on Java.

There's a lot of functionality in the browser space that enables [users] to access the Internet [or] multiple servers in their own environment. That suite has rapidly ramped up. We're also seeing business partners that now have their applications enabled for a thin-client environment. SCO, the largest Unix provider on an Intel chip base, has implemented thin clients across their new operating system going out this month. ◗

New Fixes Issued for NT 4.0

BY SHARON GAUDIN

Microsoft Corp. has issued a set of fixes for its Windows NT 4.0 Service Pack 4.0, released last month.

The fixes repair a bug that hinders some users from installing year 2000-compliant fixes that are part of the service pack. And another fix updates the Java virtual machine, bringing it into compliance with a federal court's order to make Microsoft's Java implementation follow Sun Microsystems Inc.'s standard, per Sun's Java license.

"The joke around here is, 'Which bugs did the service pack fix and which bugs did it create?' " said Bob Frase, director of information systems at PACE International Union, a paper workers union in Nashville. "Waiting a while before you download anything is almost becoming rule of thumb with Microsoft" because of frequent bugs in both initial software and subsequent service pack releases, he said.

"There were so many updates in that service pack — 600 new files — that I'm not surprised there were some problems," said Bill Peterson, an analyst at International Data Corp. in Framingham, Mass. But he said few users would be affected by the original bugs.

The year 2000 bug affects users who have Site Server Express 2.0 and MSMQ 1.0 or 1.0E message queuing on the same PC. The service pack's year 2000 update unintentionally uninstalled MSMQ, a Microsoft spokesman said.

The fixes can be downloaded from *www.microsoft.com/ntserver*. Anyone who has downloaded Service Pack 4 doesn't need to download the pack again. ◗

11 Nations Form Alliance Group to Tackle Y2K

U.S. first to contribute financial backing

BY MATT HAMBLEN

Representatives from 11 countries have created the International Y2K Cooperation Center to help coordinate multinational efforts to fix the bug.

The center's formation, announced Feb. 5, grew out of a December meeting at the United Nations, where delegates from 120 countries requested an ongoing coordinating group to aid international cooperation on year 2000 fixes.

The Washington-based center will receive operating funding through voluntary donations to the World Bank. Nations will be asked to contribute expert year 2000 advisors to the center as well.

The U.S. has pledged $12 million to the World Bank for such efforts, the only financial backing so far.

The center won't appropriate funds to nations such as Russia, which recently raised its estimated bill for year 2000 fixes to $3 billion (see related story, page 44). But it will assist international groups such as the International Telecommunication Union and the International Atomic Energy Commission by sharing information about year 2000 efforts, a spokesman said.

The 11-nation steering committee includes John Koskinen, chairman of the President's Council on Year 2000 Conversion, and year 2000 coordinators from Bulgaria, Chile, Iceland, Japan, Mexico, Morocco, the Netherlands, the Philippines, the Republic of Korea and the U.K.

The director is Bruce McConnell, past chief of information policy and technology at the U.S. Office of Management and Budget.

Analyst Howard Rubio of Rubin Systems Inc. in Pound Ridge, N.Y., said the center was needed. "Until now, there's been no way to pull together information from key groups such as the [International Telecommunication Union] for sharing," he said. ◗

Better Links For Embedded Devices

Sybase, Wind River to test integration with databases

BY STEWART DECK

Sybase Inc. and Wind River Systems Inc. last week announced they will work together to provide better links between far-flung embedded database devices — such as inventory scanners, intelligent vending machines or manufacturing systems — and central data repositories.

Sybase will integrate its SQL Anywhere database and its UltraLite deployment technology into Wind River's Tornado application development software to create a development platform for embedded database devices.

A beta program for the technology will begin in the second half of this year.

The technology was designed to give users "a standard database interface to create applications in memory-constrained environments" so they won't have to invent their own application programming interfaces, according to Sybase.

Corporate Target

The partnership also was designed to improve corporate connectivity and remote management and provide more data from remote devices through their embedded database systems.

Paul Zorfass, a Waltham, Mass.-based analyst at International Data Corp. and First Technology Inc., said the Sybase/Wind River partnership should help answer complaints that smart handheld devices are neither robust nor reliable enough.

"This is a big step toward developing [a reliable infrastructure] by realistically extending the corporate environment into client-type devices and bringing high-performance products into the embedded world," Zorfass said. ◗

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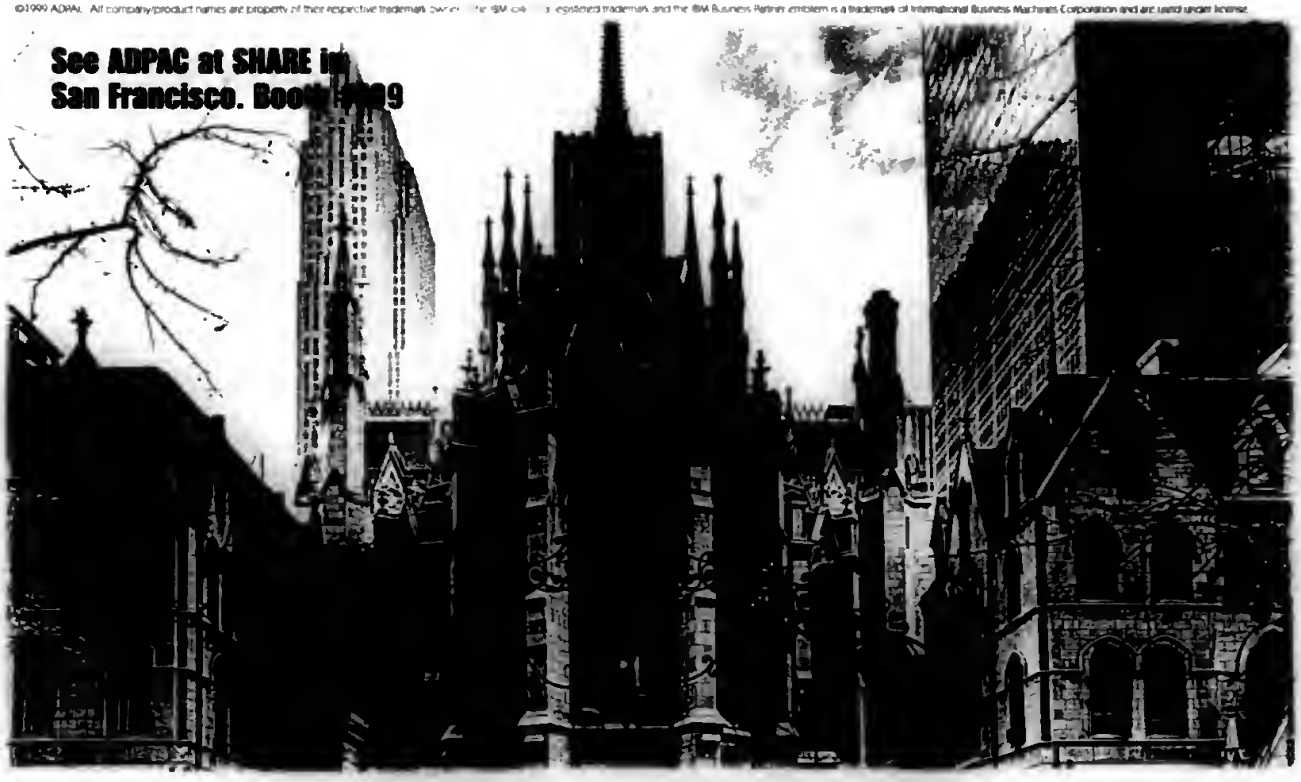

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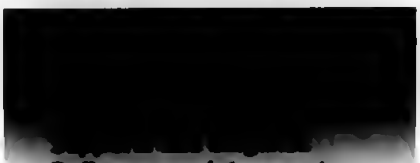

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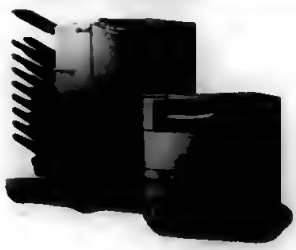

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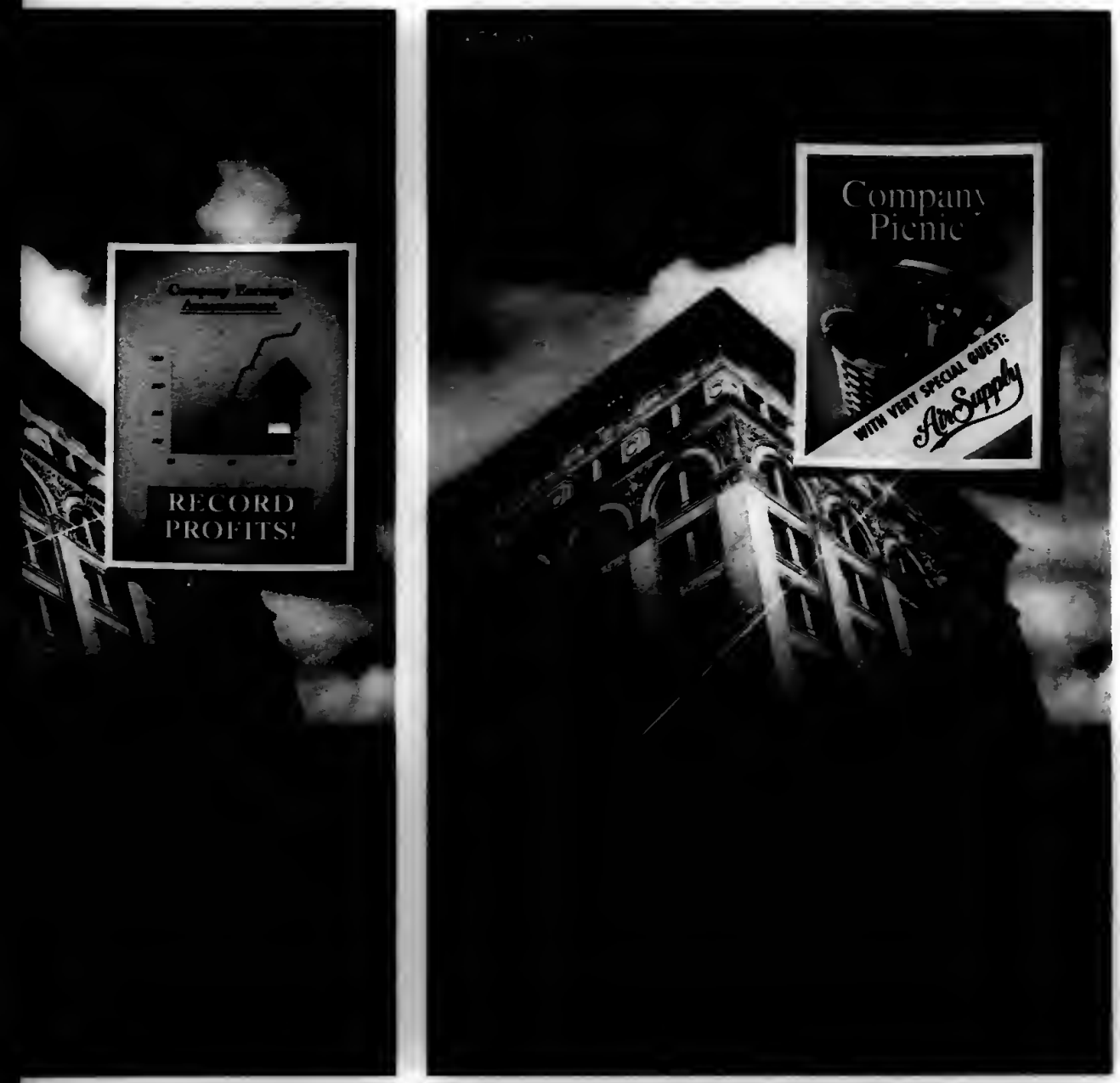

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USER VOICE IS MISSING FROM MICROSOFT TRIAL

Potential government antitrust remedies may increase IT choices, add complexity

BY KIM S. NASH

WHEN THE federal antitrust trial of Microsoft Corp. began in October, legal experts and industry pundits eagerly pondered what could happen to the vendor if it lost.

Microsoft would receive its comeuppance and be forced to strip the Internet Explorer browser from its Windows operating system, some said. Others speculated that the company would simply settle the case to avoid the kind of protracted, costly courtroom war that bedeviled IBM for 13 years.

Neither scenario appears likely now. 18 weeks into the trial at the U.S. District Court in Washington. So what's left? Based on interviews with lawyers, information technology managers and economists, *Computerworld* has identified five key remedies the government could impose — and their potential impact on IT buyers (see chart).

David Johns, CIO at Owens Corning, offers views that are typical among IT managers. Though Microsoft is an aggressive company that has both positive and negative influences on the industry, too much government intervention would be worse, Johns said.

"Let's be reasonable. We don't want the industry to be marred by government interference," he said, stressing that he hasn't seen Microsoft use any unfair tactics in its dealings with Owens Corning. The Toledo, Ohio-based manufacturer has standardized on Microsoft products for both PCs and servers.

The Microsoft Squeeze

The best remedy for Microsoft wrongs — should the U.S. Department of Justice prove any have occurred — is to prohibit exclusionary licenses, he added. That is, the court should stop Microsoft from squeezing PC makers to favor Microsoft applications in order to get good prices on Windows, Johns said.

"That," he said, "would promote competition."

But first, Judge Thomas Penfield Jackson must rule that Microsoft is a monopolist, said Bob Rubin, CIO at Elf Atochem North America Inc. in Philadelphia. So far, no court, no judge, no binding legal paper ever has labeled Microsoft with the dreaded M-word. Microsoft spokesmen often point that out.

But if Microsoft were found to hold monopoly power, it would, under antitrust law, have to abide by more restrictive rules than other companies.

ELF ATOCHEM'S BOB RUBIN: "Regardless of how they want to twist numbers, Microsoft has a monopoly on the desktop"

"Regardless of how they want to twist numbers, Microsoft has a monopoly on the desktop," Rubin said. "When you buy a new computer, it comes with [Microsoft] software, and there are, today, no practical alternatives for a CIO."

Meanwhile, the narrow browser-bundling issue that largely propelled the Justice Department's investigation of Microsoft now is a loser's argument for the government, said James Brock, an economist at Miami University in Oxford, Ohio.

A June 1998 appeals court ruling in a related case in effect said that Microsoft can indeed combine the once-separate browser and Windows.

Brock votes for carving Microsoft into pieces. "Unless you remedy the structural existence of the monopoly, then government will constantly be involved in refereeing and handling complaints," he said. "That's a path toward regulation no one wants."

That's why simply tweaking the consent decree Microsoft already operates under is unlikely to happen, according to Terry Moritz, head of litigation at Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. in Chicago.

After the Justice Department chased Microsoft for alleged antitrust violations in the early 1990s, the adversaries signed a deal in 1994 widely viewed as a slap on the wrist for Microsoft. Essentially, Microsoft agreed not to use certain restrictive clauses in its license agreements. The decree never mentioned it being a monopoly.

Neither Microsoft nor the Justice Department is apt to agree to any new settlement after having weathered a full-blown trial; both sides have gone too far to strike a bargain now, Moritz said.

Yet IT buyers — whether they are for or against Microsoft — don't have a strong voice at the trial.

The Justice Department originally intended to have Scott Vesey, an IT manager at The Boeing Co., take the stand, but Vesey was replaced by a Sun Microsystems Inc. executive just before the trial started. Vesey's written and video depositions are buried in the trial record. Now, not a single IT manager will testify.

Five Ways the Microsoft Antitrust Case Could Affect IT Buyers

A government victory over Microsoft could make the lives of IT folks easier or tougher, depending on the remedy chosen

REMEDY	ARGUMENTS FOR	ARGUMENTS AGAINST	IMPACT ON TECHNOLOGY BUYERS
Split Microsoft into separate companies, such as one for operating systems and one for applications.	Microsoft's monopoly power can be tempered only by drastic structural changes to the company.	Tampers with one of the world's most successful companies and could damage the U.S. economy.	More competition in the Windows market could lower prices, increase choices. But it could make more integration work for corporate users, especially those who have standardized on Microsoft products.
Treat Windows as an "essential facility" and force Microsoft to make its source code freely available.	Windows is too important to be controlled by a single entity.	Windows is Microsoft's intellectual property; the government can't usurp it.	A freewarelike Windows would mean low license fees — or no fees at all. But reliable maintenance and future advancement of the operating system could falter.
Force Microsoft to make public all Windows application programming interfaces.	Eliminates Microsoft's inside knowledge of Windows that other application developers don't have.	Inside information about Windows is hard-won intellectual property that should be protected.	Optimists hope for more bountiful software choices as developers would be able to write applications that work as well on Windows as Microsoft's own applications.
Block Microsoft contracts that induce PC makers to exclude competing software.	Stops Microsoft from unfairly wielding operating system power to thwart competition.	Microsoft's contracts are legal and examples of the company's business savvy.	IT managers would gain more control over which software products they buy with their PC hardware, possibly saving money.
Monetary fine for causing damage to the market.	In conjunction with some other remedy, would help address market damage caused by Microsoft's business tactics.	An easy out for a company with, at last count, $19.2 billion in cash; hard to assess amount of market damage, if any; doesn't address Microsoft's past behavior or guard against future wrongdoing.	None.

LOTUS DELIVERS TEAMWARE

QuickPlace tool joins growing field

BY ROBERTA FUSARO

THE EMERGING category of quick-hit, intranet semi-suites called "teamware," which is meant to aid collaboration among employees, got a boost last week with IBM subsidiary Lotus Developmeot Corp.'s announcement of QuickPlace.

Several companies offer such products, which let workers share information and files over the Web by letting them trade and edit documents, track meetings in common calendar folders and message one another.

There will be about 20 millioo to 24 millioo teamware users by 2002, estimates International Data Corp. in Framingham, Mass.

Teamware supports project-oriented collaboration but isn't regarded as a replacement for traditional E-mail and calendaring systems or full groupware platforms such as Lotus Notes and Microsoft Exchange, said Tom Austin, an analyst at Gartner Group Inc.

And unlike full-blown groupware, teamware relies on end users, not information technology specialists, to set up and manage the system, he said.

"All you need is [a browser], access to the Web, and away you go," said Phil Usher, a senior vice president of IT at Countrywide Home Loans Inc. in Calabasas, Calif. The company has been using a beta version of QuickPlace to communicate with several partner companies, he said.

QuickPlace, like other teamware products, can work with an E-mail client or a browser.

For E-mail clients, QuickPlace supports just Notes. It costs $99, but will be included io Notes 5.0 and Domino 5.0 this spring. Several partners plao to host the application online io the second quarter.

QuickPlace, Lotus' second teamware product since Instant TeamRoom in 1997, most directly competes with ERoom from Instinctive Technologies Inc. and Involv from Changepoint Corp. and US West Inc., Austin said.

Lower-level collaboration tools include Microsoft Corp.'s free NetMeeting and Netopia Inc.'s Timbuktu products, which let small groups share documents, messages and presentations. But neither integrates with E-mail clients like teamware products do.

Sun Creates User Network

Unix Server users share with peers

BY JAIKUMAR VIJAYAN

Users of Suo Microsystems Inc.'s Unix servers looking for help on high-availability issues soon will be able to turn to their peers for guidance through a Sun-sponsored network.

Sun last week launched the SunUp Network, under which users can trade information on best practices and benchmarks relating to application availability. The network also will carry information from The Uptime Institute in Santa Fe, N.M.

The program formalizes a two-year effort by Sun to work with several of its largest customers to identify and resolve problems leading to server failures and application downtimes. Under the SuoUp program, Sun also will make information gathered under that effort available to whoever joins the network.

"I think it is a great idea," said Ann Glisan, manager of systems development at Federal Express Corp.'s data center in Colorado Springs. "What they have done is create a task force of customers that can talk and share information on high-availability issues."

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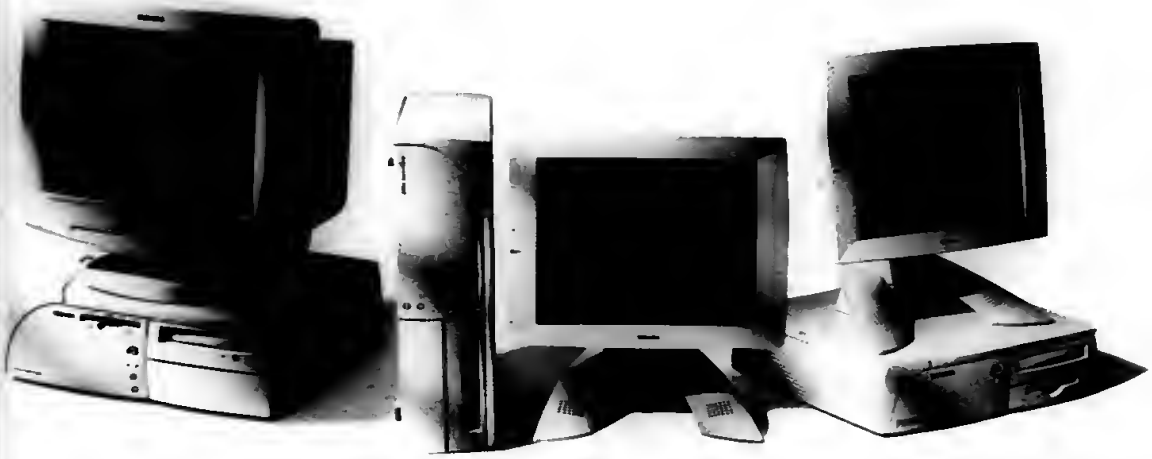

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BRIEFS

Sybase Gets DB Maker

Sybase Inc. last week announced it has purchased Data Warehouse Network, an Ireland-based, privately held provider of prepackaged business intelligence applications. Data Warehouse Network's offerings target industries including retail banking, insurance, telecommunications, health care and utilities. The products contain data models specifically designed for those industries and will be merged into Sybase's Business Intelligence Division. Terms of the deal weren't disclosed.

Cognizant Revenue Up

Cognizant Technology Solutions Corp., a software development and maintenance company in Teaneck, N.J., last week reported that revenue for the fourth quarter increased 143% to $19.5 million from $8 million in the same period a year ago.

Net income was $2.6 million in the fourth quarter. Kumar Mahadeva, chairman and CEO, said the company has substantially reduced its reliance on year 2000 remediation business and is achieving growth from clients who want to go beyond year 2000 projects.

TRW Spins Off Unit

TRW Inc. last week launched an Internet security company, called E-Certify, in Reston, Va., to provide security technologies and consulting to businesses engaged in electronic commerce.

The spin-off will use TRW security techniques and technologies developed for high-security government agencies and apply them to the private sector, such as the health care, financial and insurance industries. The new company will work closely with TRW's systems integration unit.

Palm Unit CEO Named

3Com Corp. has tapped VeriFone Inc.'s president and CEO to head its Palm Computing division. Robin Abrams, 47, assumed her post as Palm Computing's president Feb. 12. She takes over for Janice Roberts, who was serving as acting president.

WALL ST. THROWS A WET BLANKET ON LYCOS DEAL

Popular Web portal, USA Networks looking to create E-commerce Goliath

BY SHARON MACHLIS

One of the last independent top-10 Internet portals announced a partner last week. Lycos Inc. said it would join forces with part of USA Networks Inc.

The move means Lycos would be under the same corporate tent as the Home Shopping Network and Ticketmaster Online-Citysearch Inc. Home Shopping Network sells goods on both television and the Internet; Ticketmaster Online-Citysearch sells tickets for sports and entertainment events and publishes local Internet city guides.

The combined USA Lycos Interactive Networks Inc. can become "the largest E-commerce network anywhere," said Lycos President and CEO Robert J. Davis, who also will be president and CEO of the new corporation. "It's the opportunity to get very big, very fast. You create scale. I think we have created a watershed event for this industry."

USA Networks head Barry Diller, a high-profile media executive, would be the new company's chairman. The complex stock deal would give Lycos shareholders, who must approve the plan, a 30% stake in the newly merged entity. However, some major shareholders have expressed disappointment with the terms.

Internet analysts generally praised the move, saying Lycos gets access to a heavy-duty order fulfillment center in Home Shopping Network, as well as a solid entry into more localized commerce opportunities.

"Ticketmaster is the killer app for local commerce," said Melissa Bane, an analyst at The Yankee Group in Boston.

However, Wall Street hammered the deal: Lycos stock plummeted 26% the day of the announcement. Investors apparently were disappointed that USA would pay just slightly more than last Tuesday's market price for Lycos stock.

Lycos, based in Waltham, Mass., has made several acquisitions in recent years and now is a network of sites that includes HotBot.com, Tripod.com and Angelfire.com, as well as its flagship Lycos.com. All together, the Lycos properties were the fourth-most popular destination on the Web, reaching 46.5% of all Internet users, according to Media Metrix Inc. in New York.

LYCOS CHIEF Robert J. Davis considers the USA Networks deal a "watershed event"

But integrating that existing network with Citysearch and Home Shopping Network may take time, some observers warned.

But Lycos has bolstered its position as it tries to sell more goods via its site, analysts said. "From the point of view of E-commerce, it looks like a pretty good deal," said Barry Parr, an analyst at International Data Corp. in Mountain View, Calif. "It's a good step in a long journey."

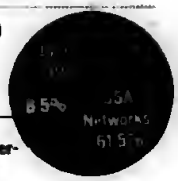
DEAL HIGHLIGHTS

Proposed Partnership

New USA/Lycos Interactive Networks Inc. deal includes:

- **Lycos Inc. network, including Lycos, Tripod, Angelfire, HotBot**
- **Ticketmaster**
- **Home Shopping Network**
- **Internet Shopping Network/First Auction**

Ownership



CA Acquisition to Bolster Outsourcing Power

$435M takeover will fill a big need

BY THOMAS HOFFMAN

Trying to bolster its small-but-growing professional services business, Computer Associates International Inc. last week made a $435 million cash tender offer to acquire Jacksonville, Fla.-based Computer Management Sciences Inc. (CMSI).

AT A GLANCE

Computer Management Sciences Inc.

Location: Jacksonville, Fla.

Employees: More than 900

Clients: Coca-Cola Co., Wachovia Corp., Merrill Lynch & Co., CSX Corp., Kemper Financial Services, Lockheed Aeronautical Systems Co.

1998 revenue: $90.2 million

1998 net income: $12.4 million

Specialties: Develops and installs applications, including object-oriented programs and relational database technologies. Provides IT outsourcing, facilities management and maintenance of legacy and client/server systems.

The deal will provide the Islandia, N.Y.-based software giant with CMSI's blue-chip list of outsourcing clients, including Coca-Cola Co. and Merrill Lynch & Co., as well as application development services that CA has lacked, said Sterling Auty, an analyst at J. P. Morgan & Co. in New York.

Unlike some systems integrators, CMSI is "quite profitable," noted Gopi Bala, an analyst at The Yankee Group in Boston.

For the calendar year 1998, CMSI raked in $12.4 million in profit on $90.2 million in revenue.

CA, meanwhile, pulled in $77 million in services sales for the fourth quarter, putting it on an annualized run-rate of $400 million including CMSI sales, Auty said.

CMSI also brings a dozen "systems outsourcing centers" — regional centers that develop and run applications for customers — to CA's Global Professional Services unit.

Though that will certainly help CA domestically, analysts want to see CA follow through on its commitment to build another dozen outsourcing centers around the world to support its international professional services growth. To that end, Auty said he would like to see CA make a similar acquisition in Europe.

CA intends to grow its services business "organically and by acquisitions," said Sanjay Kumar, CA's president and chief operating officer.

International Flavor

Kumar said the company intends to begin establishing international outsourcing centers within 30 days of the close of the CMSI deal.

Since losing its $9 billion bid for Computer Sciences Corp., CA has acquired four services firms, including Aventura Systems ASA, a Norwegian systems integrator that specializes in electronic commerce.

CA said it plans to close the CMSI acquisition within 30 days, pending regulatory approval.

One of the big challenges going forward for CA is to strike a balance between its own services business and the relationships it maintains with big services partners such as Electronic Data Systems Corp. and Andersen Consulting, Auty said.

BRIEFS

Sybase Gets DB Maker

Sybase Inc. last week announced it has purchased Data Warehouse Network, an Ireland-based, privately held provider of prepackaged business intelligence applications. Data Warehouse Network's offerings target industries including retail banking, insurance, telecommunications, health care and utilities. The products contain data models specifically designed for those industries and will be merged into Sybase's Business Intelligence Division. Terms of the deal weren't disclosed.

Cognizant Revenue Up

Cognizant Technology Solutions Corp., a software development and maintenance company in Teaneck, N.J., last week reported that revenue for the fourth quarter increased 140% to $19.5 million from $8 million in the same period a year ago.

Net income was $2.6 million in the fourth quarter. Kumar Mahadeva, chairman and CEO, said the company has substantially reduced its reliance on year 2000 remediation business and is achieving growth from clients who want to go beyond year 2000 projects.

TRW Spins Off Unit

TRW Inc. last week launched an Internet security company, called E-Certify, in Reston, Va., to provide security technologies and consulting to businesses engaged in electronic commerce.

The spin-off will use TRW security techniques and technologies developed for high-security government agencies and apply them to the private sector, such as the health care, financial and insurance industries. The new company will work closely with TRW's systems integration unit.

Palm Unit CEO Named

3Com Corp. has tapped VeriFone Inc.'s president and CEO to head its Palm Computing division. Rubin Abrams, 47, assumed her post as Palm Computing's president Feb. 12. She takes over for Janice Roberts, who was serving as acting president.

WALL ST. THROWS A WET BLANKET ON LYCOS DEAL

Popular Web portal, USA Networks looking to create E-commerce Goliath

BY SHARON MACHLIS

ONE OF THE LAST independent top-10 Internet portals announced a partner last week: Lycos Inc. said it would join forces with part of USA Networks Inc.

The move means Lycos would be under the same corporate tent as the Home Shopping Network and Ticketmaster Online-Citysearch Inc. Home Shopping Network sells goods on both television and the Internet; Ticketmaster Online-Citysearch sells tickets for sports and entertainment events and publishes local Internet city guides.

The combined USA/Lycos Interactive Networks Inc. can become "the largest E-commerce network anywhere," said Lycos President and CEO Robert J. Davis, who also will be president and CEO of the new corporation. "It's the opportunity to get very big, very fast. You create scale ... I think we have created a watershed event for this industry."

USA Networks head Barry Diller, a high-profile media executive, would be the new company's chairman. The complex stock deal would give Lycos shareholders, who must approve the plan, a 30% stake in the newly merged entity. However, some major shareholders have expressed disappointment with the terms.

Internet analysts generally praised the move, saying Lycos gets access to a heavy-duty order fulfillment center in Home Shopping Network, as well as a solid entry into more localized commerce opportunities.

"Ticketmaster is the killer app for local commerce," said Melissa Bane, an analyst at The Yankee Group in Boston.

However, Wall Street hammered the deal: Lycos stock plummeted 26% the day of the announcement. Investors apparently were disappointed that USA would pay just slightly more than last Tuesday's market price for Lycos stock.

Lycos, based in Waltham, Mass., has made several acquisitions in recent years and now is a network of sites that includes HotBot.com, Tripod.com and Angelfire.com, as well as its flagship Lycos.com. All together, the Lycos properties were the fourth-most popular destination on the Web, reaching 46.5% of all Internet users, according to Media Metrix Inc. in New York.

LYCOS CHIEF Robert J. Davis considers the USA Networks deal a "watershed event"

But integrating that existing network with Citysearch and Home Shopping Network may take time, some observers warned.

But Lycos has bolstered its position as it tries to sell more goods via its site, analysts said. "From the point of view of E-commerce, it looks like a pretty good deal," said Barry Parr, an analyst at International Data Corp. in Mountain View, Calif. "It's a good step in a long journey."

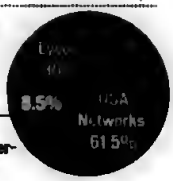
DEAL HIGHLIGHTS

Proposed Partnership

New USA/Lycos Interactive Networks Inc. deal includes:

- Lycos Inc. network, including Lycos, Tripod, Angelfire, HotBot
- Ticketmaster
- Home Shopping Network
- Internet Shopping Network/First Auction

Ownership



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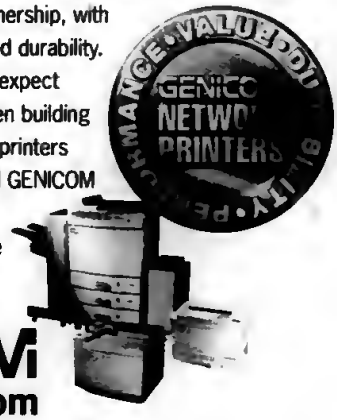

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MARYFRAN JOHNSON

The silent majority

WE COULD CALL IT *Sex, Lies and Videotape, Part Deux*. What better title for the sorry spectacle in Washington these days as the trials and tribulations of the two Bills (Clinton and Gates) unfold? President Clinton's historic impeachment trial is anticlimactic in comparison with the courtroom theater being provided by Chairman Gates' discredited witnesses and doctored videotapes.

The lead government attorney, David Boies, has shown Gates and his top execs to be, at worst, outright liars. At best, they're mighty forgetful fellows.

Yet for the CIOs and IT professionals who actually buy Microsoft products — the consumers whom antitrust law is meant to protect — there's a curiously missing factor here. Where are your voices?

MARYFRAN JOHNSON is executive editor of *Computerworld*. Contact her at maryfran_johnson @computerworld.com

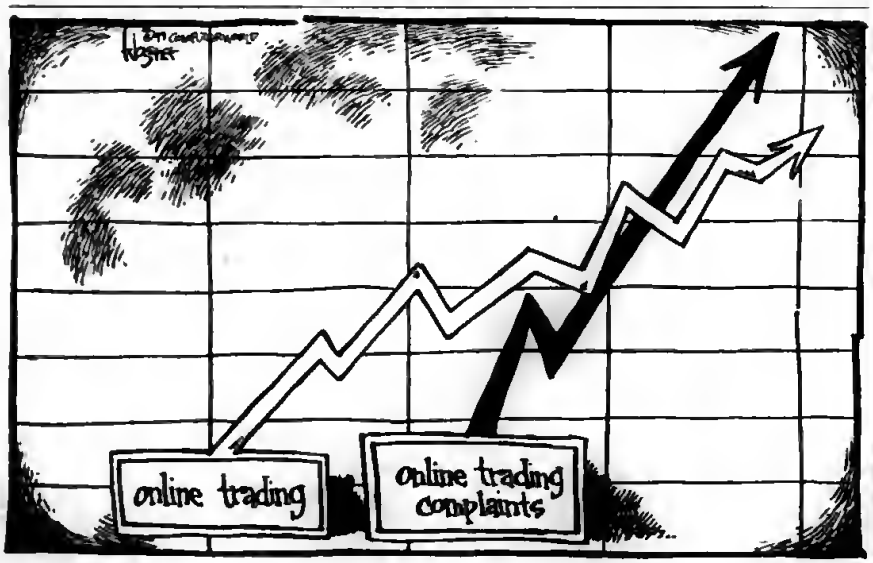
Among the dozen witnesses permitted for each side, the lone IT manager on the original list got bumped in favor of a vendor witness. Microsoft is fond of trotting out supportive users at its product announcements, but in its most dire legal challenge, the company completely ignored you all.

In the hundreds of stories written about this trial since its start in October, the ultimate impact on IT buyers has been largely ignored, as well. So we've tried to fill in a few of those blanks with our story this week (see page 24). Reporter Kim S. Nash talked with IT managers, lawyers and economists to identify five possible remedies the government might impose on Microsoft — and the impact each could have on your business.

The best remedy we found was this: Microsoft stops forcing PC makers into exclusionary contracts that keep competitors locked out. IT managers would gain control over which software they buy with PC hardware, sparking true competition and the innovation that goes along with it.

The revival of the Mac and unexpected rise of the Linux freeware operating system show how eager users are for alternatives.

So even if the government loses this case, you know enough now about how Microsoft uses its monopoly power to demand changes in its business practices. Raise your voices. ▶



BILL LABERIS

The Supreme Court has just redefined IT's role in business

THE INTERNET and the Web have exploded onto the IT world and into our mainstream lives in a way that no one could have ever foreseen. But as the saying goes, you ain't seen nothin' yet.

Thanks to a ruling from a sharply divided U.S. Supreme Court late last month, we may well be poised at the starting line of an era of even more astounding Internet-related growth and development.

BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of *Computerworld*. Contact him at bill@laberis.com.

The decision upholds a 1996 Federal Communications Commission rule mandating that the local phone companies lease their local lines and network components at special rates to other providers. These phone companies heretofore had succeeded in keeping competition out of local markets, holding as their own the local connections built over the years with federally approved monopoly profits.

Now the high court has said, in essence, that these local lines belong to everyone, just like the highways we drive on. Everyone has a right to pay tolls and fees and drive on them.

Forget about what this means for increased competition in the telephone and voice-related business, because that $100 billion U.S. business is small potatoes compared with the big enchilada. The real story here is that very high-speed Internet access — true broadband connectivity — is going to become widely available at rates comparable to what we pay for cable TV today. And it's going to happen in the next couple of years.

Still, the story here is not the affordable xDSL and cable modem network access services (and eventually wireless services) that are going to proliferate throughout the country. The story lies in the applications that these services will enable — applications that will change business and therefore IT almost overnight.

Just think of how an Internet world enabled primarily by standard analog modems has changed business already. Internet commerce is growing faster than even the most optimistic projections. Businesses such as bookselling, automobile dealing, securities trading and travel have undergone wrenching changes. Now think of what will hap-

pen when Internet access speeds improve tenfold, twentyfold, even fiftyfold over conventional modem access.

Within five years, if not sooner, auto dealerships will vanish, and cars will be built to order the way Dell builds PCs today. Travel agencies will disappear, as will home real estate agents. The sprawling shopping centers we've built will begin to empty out as homes are resupplied with everything from socks to orange juice the same, automated way that Xerox is resupplied with copier components on a just-in-time basis.

And who will be charged with making all the trains run on time in this radically altered world just over the horizon? You will, because IT is going to come front and center in a way only talked about previously.

That was some court decision.

DAVID MOSCHELLA

The globalists are in charge, and they love IT

THE DAVOS MEN, and that much rarer species, the Davos women, met earlier this month in Davos, Switzerland. Every year, the global plutocracy convenes in this posh alpine resort to ponder our economic position and prospects. But now, thanks to the Web, even us hoi polloi can see and hear what the rich and powerful are thinking. If you didn't tune in, here's what you missed.

DAVID MOSCHELLA is an author, independent consultant and weekly columnist for *Computerworld*. Contact him at dmoschella@earthlink.net.

First, a disclaimer. This was the 29th meeting of the annual World Economic Forum. As far as I know, no one there ever predicted the end of the Cold War, the resurgence of the U.S. economy, the prolonged stagnation of Japan, the severity of the Asian contagion, the explosion of the Internet or most of the other major stories of our time.

Like most of us, the Davos people tend to assume that the future will be just a minor variation from the present. Although that approach always sounds safe and sensible, it's usually wrong.

So we can basically ignore any predictions about what will happen this year and beyond, especially since no one really said anything that couldn't be heard on Sunday morning talk shows.

That isn't meant as criticism; most of the Davos people don't see themselves as prognosticators. They're primarily builders, leaders and managers. Therefore, what really matters is what they're thinking.

And there is nowhere better than Davos to get in touch with the current global business zeitgeist.

Ironically, the recent turmoil in Asia and Latin America has led to a remarkable degree of harmony and consensus.

Just as the collapse of socialism during the 1980s narrowed political debate down to what sort of capitalism one prefers, the failures of the Asian economic model in the 1990s have led to an unprecedented convergence around what once were described as predominantly American values.

Transparency, openness, deregulation and restructuring are now the watchwords in Europe, Japan, Brazil and elsewhere.

During the many global financial panics of last year, there were repeated calls to stem the rush to globalism, to set up Asian solutions for Asian countries and to curb corporate raiders and speculators.

But very little has actually happened. Malaysian President Mahathir Mohamad blamed the West for his country's troubles and was widely ignored. Meanwhile, Mexico, Korea, Thailand et al have done little that isn't in the International Monetary Fund playbook. There are a thousand plans to soften or fine-tune globalism. However, there is almost nobody who wants to withdraw from it. You don't hear much about "Asian values" anymore.

Of course, the Davos people also are big fans of technology, and thus all that harmonization can't help but expand the information technology business. It seems like everyone now agrees with the once largely American notion that technology, restructuring and stability are in fact completely intertwined concepts.

Perhaps that's why the Davos press tends to treat technology CEOs as first among the business equals, like the rock stars at Woodstock.

How long this global love-in will last is anyone's guess. We haven't reached the end of history, and national interests will inevitably diverge. The real test of globalism won't happen until the whole world goes through a prolonged recession or an equivalent crisis.

But today, the Davos people are in charge, and they're using technology to steer the world toward an unprecedented level of uniformity.

Like it or not, we're all working for the Davos people, no matter where we live.

READERS' LETTERS

Noble intentions; distressing results

I AM WRITING in response to "Let the Boys Be Mechanics: These Girls Want to Drive!" [CW, Jan. 18]. Technology, as I am sure anyone in the field would tell you, is a field composed of mechanics, not drivers. Without mechanics, what would the drivers do? They couldn't operate their car and couldn't change their own oil.

Without the aid and intellect of our technology mechanics, there would be no cell phones, beepers or Internet available for those drivers to operate. And certainly females are as welcome to the tools of the trade as males, which does not seem to be indicated at all in the article.

Instead, the girls are portrayed as mindless, gibbering mall rats — the exact stereotype that I believe the article was trying to dispel.

I am distressed that a newspaper such as *Computerworld* would support such a wretched stereotype of our young women.

Jaclyn Neel
Wayland, Mass.
pak@mediaone.net

Failings of online banking software

I READ "A clash of cultures" [CW, Jan. 18] about the banking industry's lack of success with online banking software. Having worked in banking, I know of the industry's cultural roadblocks to online services.

However, since I have been spoiled by Wells Fargo Bank's Web-based online banking for about three years now, I have wondered why anyone would want to load special software on their PC (which is probably not available for Macintosh) and then connect to the bank.

Personally, I prefer to connect to my Internet service provider and do all my online services over the Internet with one connection, rather than having to dial up to separate locations for each service. It appears that online banking (with Wells Fargo being the rare exception) is not only behind times, but a software vendor such as Vertigo should have known better.

Gordon Hesketh
MIS manager
Louisiana Chemical Equipment Co.
LaPorte, Texas
gordon@heskco.com

Stories of survival

THANK YOU for having the courage to print "Champions of Women in Technology" [CW, Jan. 18] and its accompanying pieces. The articles give a rational and complete overview of what is being done and of what still needs to be done to help women enter and stay in this great field. I especially liked the way the facts were presented about gender differences without sounding like we (females) are victims.

As a 20-year veteran of the computer field (data entry, operations and programming), I know how hard it is to stay in a male-dominated environment and survive with style and grace.

Thanks again, and I hope to see more articles of a similar nature in the future.

Jan Mathern
St. Paul, Minn.
jan.mathern@metc.state.mn.us

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-8931. Internet: letters@computerworld.com. Please include an address and phone number for verification.

JOHN GANTZ

IT: Big pressures, bigger rewards

THIS IS A GOLDEN AGE for IT — so stop whining. Hey, am I in a time warp here? Must be. I've just gotten a peek at some qualitative research a client conducted with more than 100 U.S. CIOs. In it, I read comments like these: "This business would be great if it weren't for end users. They screw up everything." "My CEO doesn't understand me or know what I do." "No one knows how complex this job is." "I train my people and then they leave."

Folks, these are the same beefs I heard 25 years ago when I'd interview MIS managers about departments using minicomputers and terminals that ran Cobol programs. I heard them again 15 years ago when PCs and LANs were pouring into companies through every door and window. Now I hear them as we cross into the era of Internet computing.

JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at [redacted]

I know the environment and the stakes have changed. Almost every application is now considered mission-critical. For instance, in an International Data Corp. (IDC) survey last year on Windows NT adoption, large companies said 42% of their applications were mission-critical. Welcome to the fishbowl.

And, yes, there aren't enough people to do the work. Again, according to IDC's forecast model, this year alone there will be more than 100,000 professional jobs that go unfilled in IT shops. But then, 25 years ago, we had the same gnashing of teeth about the shortage of Cobol programmers.

Do you think this environment is any easier for the marketing, sales, finance and management executives in your company? They're in the same fishbowl you are, facing the same mergers and acquisitions and running as much risk of being downsized. Even worse, in the new environment, they find their careers held hostage by technologies they don't understand, managed by people they often don't understand.

Besides, this time around, IT professionals have something to go along with all that pressure: the chance for fame and glory.

Twenty-five years ago, the most career-threatening event an MIS manager faced was a mainframe operating system conversion. If it was successful? Ho-hum. With PC/LAN implementations 15 years ago, the most career-threatening event was the switch to Windows. If that was successful? People got used to mice, and the company ran 1% better.

Today, if you can deal with these technology shifts, what are the potential rewards? Your company blasts past the competition, makes 10% more profit, gains 50% in stock market valuation and puts a stake in the ground for the next 20 years. And everyone knows it couldn't be done without IT! (End users and CEOs have learned at least that much in the past 25 years.)

So everything is mission-critical? Then make sure it all works. Not enough staff? Outsource. End users causing problems? Upgrade them. CEOs in the dark? Hire people who understand marketing and put them in charge of internal public relations.

This is not a chance to be missed. There are companies whose CEOs and end-user managers are singing the praises of IT. And they're not just high-tech leaders such as Federal Express, but also old-line, cost-driven companies like Dow Chemical.

Carpe diem. We won't pass this way again. ▶

JON CAMPBELL

The many flaws of Java should make you think twice

AS A 30-YEAR VETERAN software engineer, I wasn't looking forward to learning yet another language as well as a whole new lexicon associated with it.

But when I took my first Java course, I was pleasantly surprised: It really was enough like C and C++ that I could get the hang of it, and I liked the object-oriented perspective and some of the terminology. The method library was huge; it seemed that you hardly had to write any code at all. Writing simple Java programs was almost as easy as operating a toaster.

JON CAMPBELL is principal software engineer at Unifi Communications in Lowell, Mass. Contact him at [redacted]

But some things made me uneasy about the Java language. On the technical side, calling native methods written in C or C++ is absurdly difficult. The lack of destructors is at best odd because they're necessary to avoid losing other resources — sockets, file handles, pipes — when the structures pointing to them are deallocated by the garbage collector.

More important for companies considering basing their operations in part on Java is what Sun's marketing calls its "total break" from C and C++. As a practical matter, Java could have been made to be relatively compatible and to allow easy communications with those languages. That would have let organizations maintain and enhance their substantial software investments. Instead, Sun seems intent on obsoleting virtually the entire world's code base, referring to it as "legacy" software.

Worse, there's no moderating force. Last year, Sun persuaded a majority of the American National Standards Institute (ANSI) language committee to approve Java as a standard language but to let Sun continue as sole proprietor and designer. Previously, any language that was approved as a standard was then maintained and modified only by the majority of the ANSI committee for that language. In the case of Java, Sun retains proprietary possession of the language, and the ANSI committee becomes a rubber stamp for Sun.

In Java development projects, I have found that overabstraction and overobjectification seem to complicate very simple problems. The whole Java/Common Object Request Broker Architecture mind-set erects barriers to thinking about simple problems in simple terms.

As a direct consequence of that mind-set, and of the resultant lack of attention to the data being manipulated, designs are overly complex, and performance is poor. Debugging errant Java processes and threads is a nightmare, a throwback to spraying batch Fortran programs with Print statements. Because of security and performance considerations, Java applets on Web sites have become relatively rare, and Java isn't even allowed through some corporate firewalls.

Despite packaging Java as a neutral language and platform, Sun is really pursuing a common industry tactic for garnering market share. All the big players in the computer market — Microsoft, IBM, the former Digital, Hewlett-Packard, Sun and so on — have done it in the past, with software or hardware that's not-quite-compatible with what is standard. The idea is that you "lock in" customers by portraying the incompatibilities as gigantic advantages, locking out the competition.

The Java language is a masterful attempt to move programmers and organizations into the Sun orbit, into a proprietary software architecture and platform that is "open" in name only, from the "Windows monopoly" to the "Java/Java virtual machine monopoly," which comprises software that, coincidentally runs best on Sun hardware using a Sun operating system.

I believe that for Sun, wide acceptance of Java and the Java virtual machine is a life-or-death issue because the company's hardware and operating system are being eclipsed by faster Intel and AMD chips and by the Linux operating system. So Sun's motives are understandable. But the method is underhanded.

I urge organizations to consider whether they want their software infrastructure to depend on an essentially proprietary software architecture owned and licensed by a single company, with all the other problems I've mentioned. I personally would think twice before making such a decision. You should, too. ▶

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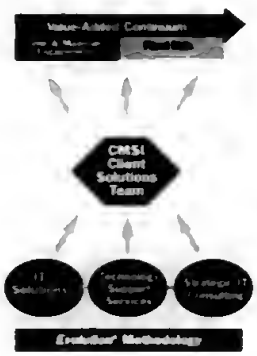

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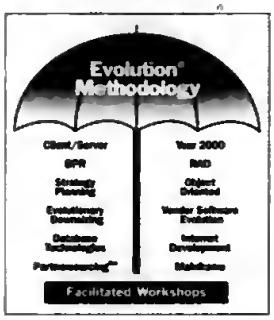

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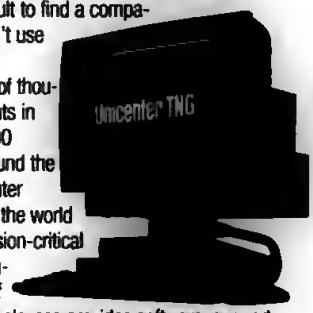

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CMSI Is Great News You Look At It.

strategic acquisitions like this one.

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"Our partnership with CMSI extends our continuing strategy of building GPS through highly-focused acquisitions that complement CA's core competencies and that address the most critical requirements of today's global enterprise," says CA President and COO Sanjay Kumar. "CMSI's proven development methodologies and extensive experience with strategic re-engineering make them an ideal addition to GPS's already formidable technology and business resources. They will provide a particularly powerful vehicle for greater penetration of CA's Jasmine and Ingres technologies into the upper echelons of the corporate application development market space."

"This is a very exciting time to be joining the CA family," says CMSI Chairman and CEO Jerry W. Davis, "Our two companies have an ideal fit in terms of technical strengths, business vision, and corporate culture. We're especially enthusiastic about the contributions this partnership will allow us to make globally in high-growth areas such as Internet commerce applications and multimedia content delivery."

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intel inside pentium II

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BUSINESS

HDI SHRINKS

Help Desk Institute members are fleeing to competing upstart organizations, complaining about HDI's service. The upstarts have high expectations, but the HDI says it has big plans, too. ▸ 40

ERP CHANGES

ERP installations face lots of hurdles, not the least of which is to help business-side project members understand the need to document changes made to software to match business needs. ▸ 41

COUPONS ONLINE

Two of the top 15 surf sites offer "coupons" that can be printed and used at brick-and-mortar stores. Customers such as Chuck E. Cheese's parent company find it an efficient way to get promotions into the hands of consumers. ▸ 44

FOOD FIRMS CROSS FINGERS

Packaged-food makers say they're almost ready for the ultimate deadline but aren't sure about their suppliers — especially those overseas. Many, such as General Mills, send agents to check the links in their supply chains. ▸ 45

KEEPING NEW HIRES HAPPY

Happy IT staffers say time off may be the best perk their employers can offer. But electronic-commerce, year 2000 and other projects demand more time, not less. Handling the conflict well can keep staffers and projects on track. ▸ 48

SHAPE UP OR SHIP OUT

More business relationships will end this year than at any other time in modern history — and conflicts over year 2000 issues will be the cause of most of the breakups, Ed Yourdon predicts. But if lots of big companies switch vendors simultaneously, the changeover chaos could be worse than year 2000. ▸ 49

TEACHING THE ROPES

Orientation should involve more than a handshake and a quick "hello." Getting IT people off to a good start makes them more effective and keeps them around longer. Have a desk ready, a buddy to show them around and give them a reason to look forward to working for you. ▸ 48

TIPS ON UPPING YOUR SALARY

Here are 10 tips on how to get a raise now. Basically, do something right, do something valuable and make sure the boss knows about it. ▸ 56

MORE

Advice 58
Careers 46
E-commerce 44
Opinion: Ed Yourdon 49
Year 2000 45

CHARTING A NEW COURSE

CEO MARSHALL CARTER has reinvented Boston-based State Street Bank and Trust Co. He started with a bank that used information technology and made it an IT company that provides state-of-the-art tools and services for asset custody and asset management.

52

Members Abandon Help Desk Institute

BY JULIA KING

The Help Desk Institute (HDI) is supposed to provide its dues-paying members with newsletters, updated information about industry best practices and ongoing support for local chapters.

Yet Eugene Ball, president of the HDI chapter in Research Triangle Park, N.C., can't recall the last time he received any of that from the San Francisco-based professional association.

Nor can Margo Fullilove, president of the 700-member Chicago chapter. "Over the years, the support and interaction we have gotten from HDI has eroded," Fullilove said. "We feel like we're being used as a mailing list, and we're not getting a good deal of support back." The Chicago chapter is considering joining one of two new groups that are forming to represent help desk workers.

Still other HDI chapters — including one in Vancouver, British Columbia — already have severed ties with HDI.

What Vancouver would like from any new association is "an avenue for networking and an ethical company with current information, industry standards and benchmarking," said Karen Yuen, president of the now-independent chapter that calls itself Help Desk B.C.

One of the new groups, Atlanta-based Help Desk 2000, which offers education and certification programs, aims to sign 2,000 new members by next year, said Jennifer Cress, executive director.

Among other things, members will participate in monthly teleconference discussions and have access to a members-only Web site. Help Desk 2000 also hired Pete McGarahan, whom HDI fired last October as executive director apparently because of the group's insufficient finances. McGarahan now is traveling the country to recruit members for the new organization — as is Ivy Meadors, founder of the new, nonprofit Help Desk Professionals Association (HDPA).

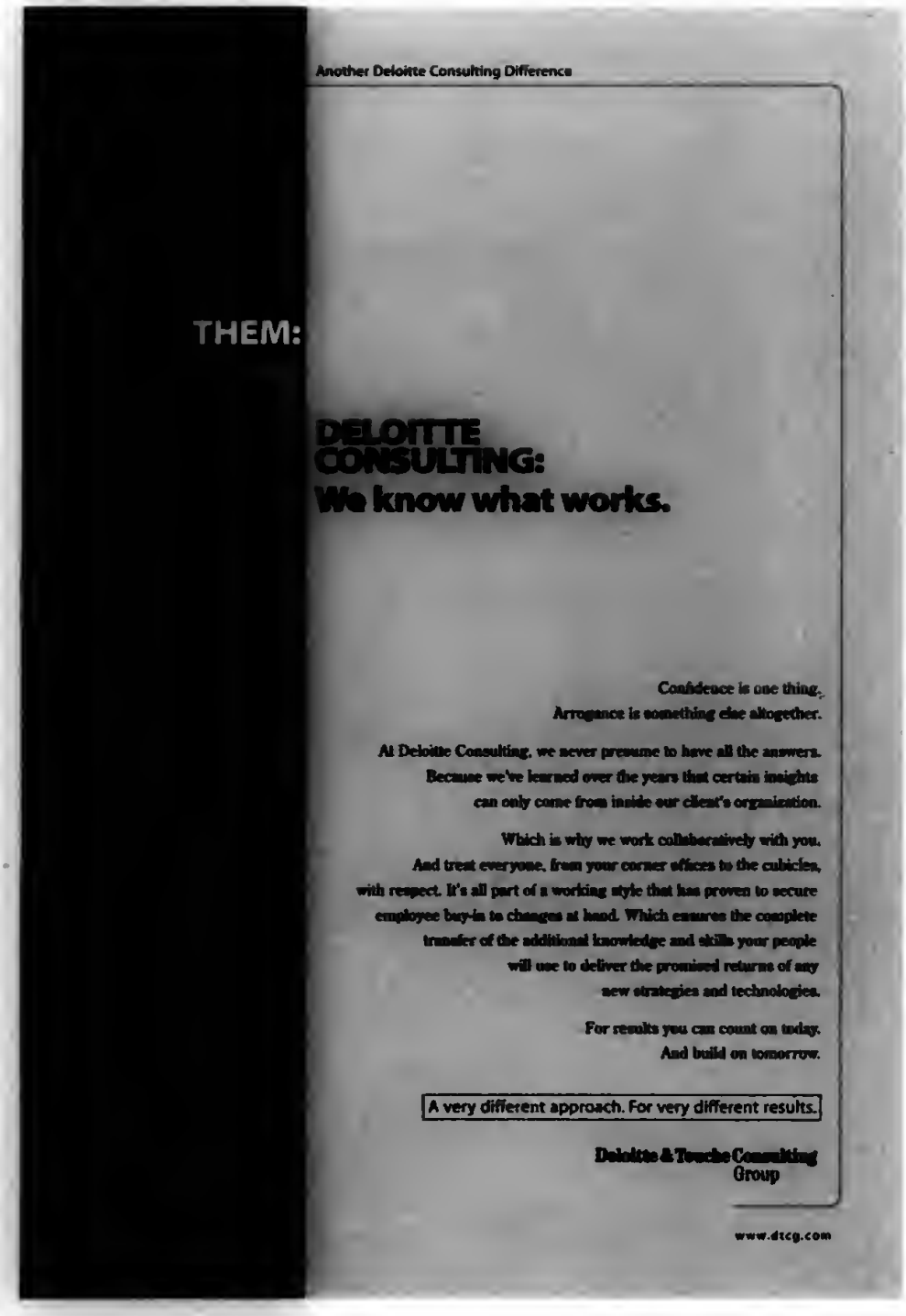
Meadors described HDPA as "an E-commerce-based virtual business." Member benefits will include access to an online database as well as tutorials.

"People in the industry are already submitting content for free," Meadors said. "We've also been receiving between 300 and 400 E-mails a day and have had 175 volunteers the first week."

HDI also has big plans, according to Bill Rose, managing director of the Ziff-Davis Association, which has owned HDI since 1992. Although he declined to be specific, Rose said the group plans to announce "several innovative membership deliverables" at next month's Support Services Conference & Expo, a Ziff-Davis event in Washington. ◗

MORE ONLINE

For links to publications and other resources related to help desks, visit our Web site www.computerworld.com/more



TRACKING CHANGES A MUST IN ERP PROJECTS

Business users sometimes fail to realize importance

BY CRAIG STEDMAN

FOR ERP project managers, instilling a sense of discipline among workers who will use the applications can be a make-or-break necessity. And controlling software modifications is a prime example.

Setting guidelines for employees who are involved in tailoring packaged software to fit a company's unique business needs is only the beginning, said several managers involved in rollouts of enterprise resource planning (ERP) systems. The bigger challenge is persuading workers facing tight project schedules not to cut corners in documenting the changes they make.

That process can be complicated by the fact that a disproportionate number of business users make up most ERP project teams. Unlike those with more informatioo technology experience, these users may not realize the importance of keeping track of software modifications, the managers said.

To many workers, change management "looks bureaucratic," said Gary Peteritas, SAP project manager at Hoechst Marion Roussel Inc. "You can dictate it, mandate it and legislate it, but that's just like the rules of the road. Just because there are speed limits doesn't mean people will pay attention to them."

Don't Get Lost

Convincing ERP team members of the need to document changes slavishly is a must, "or you never really know what you've installed," Peteritas said. That could cause problems with things such as upgrading the software and tying it to other applications (see chart).

Hoechst Marion Roussel, a Kansas City, Mo.-based pharmaceutical maker, went live with SAP AG's R/3 applications last month. During the rollout, Peteritas said, he and other managers tried to "touch each persoo individually to make [the importance of change management] stick." That included showing workers examples of how government regulations require tight documentation of the software used in the company's manufacturing operations.

Algoma Steel Inc., a steelmaker in Sault Ste. Marie, Ontario, faced similar change-management challenges after it began installing PeopleSoft Inc.'s applications [CW, Feb. 1].

Laying out rules isn't hard, said Gary Disano, Algoma's project manager. The big job, be said, is "making sure people grasp the concept of why you're setting them up and what the implications of not following them are."

To help with that, even the business users involved in the project were sent to PeopleSoft's technical training classes, Disano said.

Algoma also borrowed the software installatioo methodology of a consulting firm that was hired to work on the project.

For IT workers assigned to a PeopleSoft rollout at The MacManus Group, the importance of documenting software changes "is part of their indoctrination to the project team," said Jim Dileo, senior vice president of worldwide IT at the New York-based advertising and public relations firm.

To further encourage developers to "take more care on the front end," Dileo said he also requires them to help support the software after it's installed.

Control Yourself

Closely managing and documenting changes to ERP software can help users:

- **AVOID** problems when the applications are upgraded
- **GUARD** against common business processes being compromised
- **KEEP** ERP systems synchronized with other applications
- **STAY** eligible for vendor-supplied technical support
- **PROVE** compliance with government regulatory requirements

Analysts: Plan for Handhelds

Single platform, product 'shortlist' top advice list

BY MATT HAMBLEN

Analysts have plenty of tips to help IT staffs manage handheld computers and smart phones, as usage of such devices is expected to quadruple by 2002 and infiltrate corporations.

Many information techoology managers admit they aren't prepared to support handhelds [CW, Feb. 8]. So analysts are at the ready to help them decide some basic issues, such as whether they should standardize on a single platform or budget funds to synchronize setup. Experts' recommendations vary.

In a research note, analyst Ken Dulaney at Gartner Group Inc. in Stamford, Conn., urged firms to create a product "shortlist" for users to buy from. But IT "should never expect that a single personal digital assistant model will ever be adopted," he warned.

Analyst Gerry Purdy at Mobile Insights Inc. in Mountain View, Calif., urged firms to settle on one platform by the year 2000. He said he believes that Microsoft Corp.'s Windows CE will be the best way to access company networks.

Forrester Group Inc. in Cambridge, Mass., advises IT staffers to tell business departmeots to buy devices that will ruo custom applications, since that's one area where they probably can gain a competitive advantage.

As for support, a report by Forrester analyst Matthew Nordan suggests moving synchronization functions from users' desktops to back-end servers to provide more security and minimize version control problems. Such technology should be available by midyear from Puma Technology Inc. in San Jose, Calif., Forrester said.

Setting up synchronization will cost about $50 per user, the report said, which can be cost-justified by pointing out that a tech support visit for one device without a sync service program would cost about the same.

Gartner urges standardizing on a synchronization product to support a variety of devices.

Illinois Prisons Upgrade Database to Tighten Reins on Cons

BY STEWART DECK

Illinois prisons are full of inmates. Their files are packed with information and photos used by wardens to place new arrivals safely and by investigators to solve prisoner crimes more speedily.

The information is continually fed into a database that is growing so quickly it will need a database system upgrade this spring.

"Some people say the inmates' favorite pastime is to sue us, so we need all these details and need to make sure we cover every occurrence," said Scott Lovdahl, a data administrator at the Department of Corrections in Springfield, Ill.

The system, with a centralized Sybase Inc. database and 26 smaller satellite Sybase databases, holds detailed information on the state's 40,000 inmates that can help staff decide which cell would be safe for a particular prisoner, for example. Each record includes the inmate's criminal background, religion, any gang affiliations, job assignments and history of cell moves.

Fewer confrontations mean less stress on the guards and inmates, fewer worker compensation claims, fewer injuries and less dangerous facilities.

Easier IDs

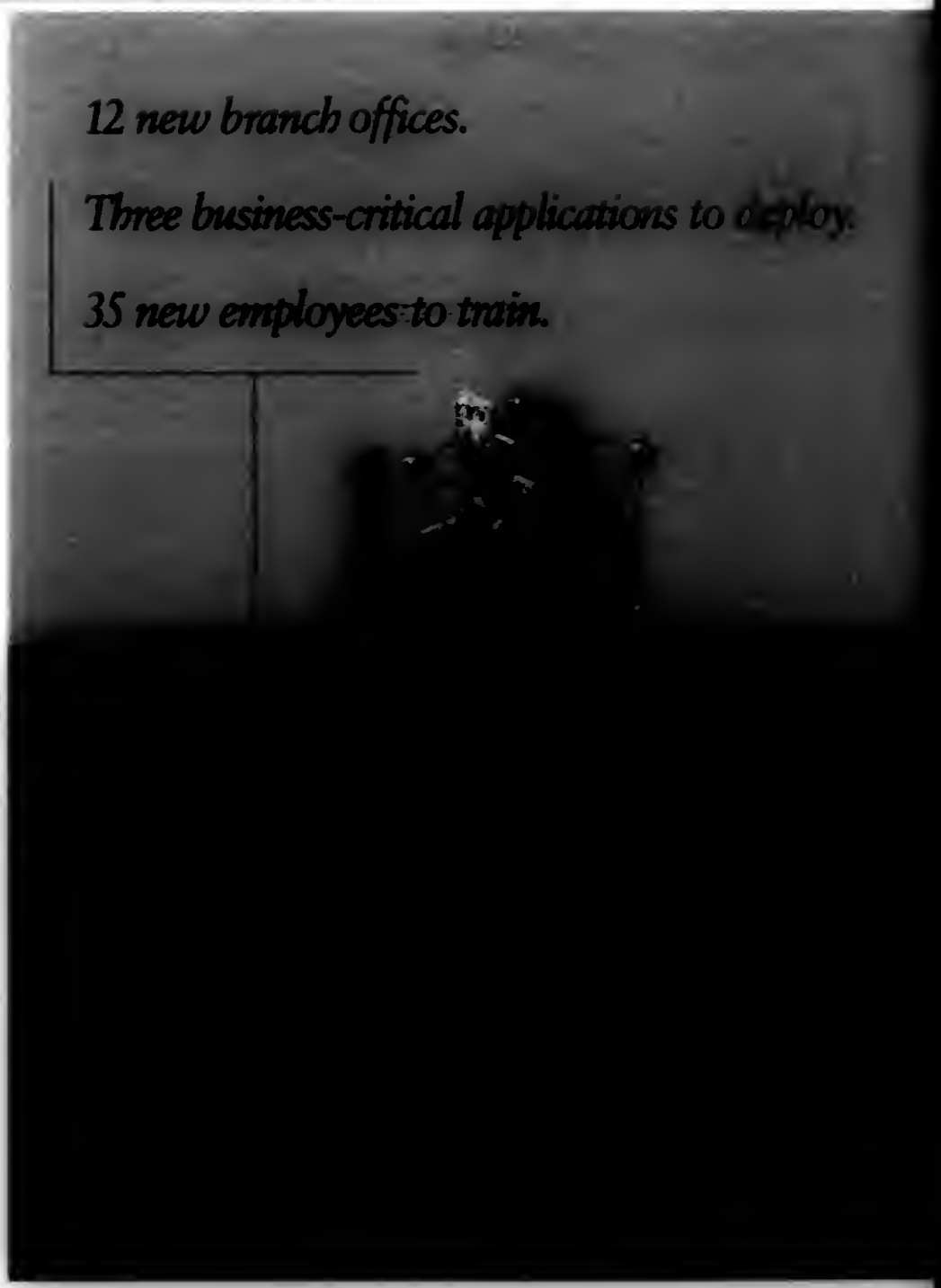
"This system has sometimes cut days off of our investigations," said Lt. Tom Carroway, an internal security investigator at the Menard Correctional Facility in Menard, Ill. "This lets us quickly look up an inmate's past history and immediately get up-to-date photos of them we can print out and use for identification purposes."

Bill Taylor, a development specialist at the American Correctional Association, a professional association in Lanham, Md., said several states use some form of inmate tracking systems like that in Illinois because "they can be an excellent tool for managing prison populations and decreasing inmate-on-inmate violence."

"The nature of the business is maintaining control of people and events, and that means knowing the relevant facts in advance if you can, or immediately when a situation arises," said David Lanterman, manager of information services at the Department of Corrections.

On the technical side, the stress of updating so much data is eased by the fact that each prison runs its own smaller subdatabase. The main database replicates 26 subsets of the data — one for each of the state's correctional facilities — "which speeds everything up immeasurably," Lovdahl said.

Still, the department will add Sybase's Adaptive Server Enterprise database and Sybase Replication Server to the system this spring to better handle the crushing load of digital photos — currently 230,000 and growing.



Hartford Hospital Seeks Competitive Edge With $1.7M Net

BY BARB COLE-GOMOLSKI

At a time when most hospitals are throwing the bulk of their information technology resources at year 2000 projects, Hartford Hospital is investing hig in a high-speed network.

The 800-bed Connecticut facility is betting that the applications it will run on the $1.7 millioo Asynchrooous Transfer Mode network will make it stand out in a competitive market and let it share resources with nearby affiliates.

The oew 3Com Corp. oetwork, about 100 times faster than the old Ethernet network, will lead to speedier diagnoses, said Alan Hofmann, director of network services. A medical records imaging system from Sungard Healthcare in Rockville, Md., will automatically distribute patients' medical histories to physicians, nurses and administrators. A picture archival application will let radiologists quickly share X rays. The hospital also plans to install videoconferencing to let physicians at remote offices and affiliated hospitals discuss treatment strategies.

The hospital haso't selected vendors for the archiving and videoconferencing.

Another initiative involves putting patient monitoring information on the network, so doctors can view a patient's vital signs remotely with a delay of about 30 seconds.

Because the network extends to two affiliated hospitals and more than 30 remote clinics, the health care system will be better able to share its doctors and facilities. "As we expand our services across the state, we need to ensure that critical data moves rapidly among medical teams and across sites," Hofmann said.

Many hospitals have outgrown their networks as they move toward use of electronic patient records and digital medical devices. In a survey last year of 1,600 members of the Chicago-based Healthcare Information and Management Systems Society, 34% of respondents said they were using telemedicine applications similar to those at Hartford.

Hartford Hospital appears to be slightly ahead of at least one of its main competitors, Yale-New Haven Medical Center.

Keo Best, a spokesman for Yale-New Haven, said his hospital has digital imaging throughout its main facility. And it wants to link the diagnostic systems at each of its facilities, which include Yale Medical School and a children's hospital, to make sharing information easier.

Many hospitals have tight IT budgets, and investment in new projects has slowed because of year 2000 work. But some begin projects to help them reach outside their coverage areas, said Larry Powala, an analyst at Dorenfest & Associates, a health care IT consultancy in Chicago.

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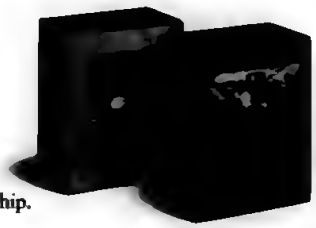

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COUPON CLIPPING HITS THE WEB — BIG-TIME

Consumers register in droves to receive real-world discounts from national stores

BY SHARON MACHLIS

ALONG WITH toys books and music, one of the most popular shopping categories on the Internet in December was ... coupons.

Coolsavings.com and Valupage.com cracked Media Metrix Inc.'s top 15 shopping sites for December, garnering more than 1.8 million unique visitors. Each site offers discounts on goods that are bought in the brick-and-mortar world.

"It seems to be an extremely efficient way to reach people," said Jon Rice, vice president of marketing at CEC Entertainment Inc. in Irving, Texas, which operates the Chuck E. Cheese restaurant chain. "When we started out, it was purely an experiment. We've hung in there because it's continued to grow."

Rice didn't discuss specific numbers but said the cost per coupon redeemed from Coolsavings.com is "very attractive for us" compared with coupons by mail or newspaper inserts. Other offers on a recent visit included 20% off one item at Toys R Us and $1,000 off a Chrysler Sebring.

Coolsavings Inc. now has more than 1.3 million registered households, and revenue has grown twelvefold from a year ago, said Chairman and CEO Steven Golden. The privately held company, which doesn't release financial figures, has signed up about 60 national accounts, including H&R Block Inc., Kmart Inc. and Kids R Us. "We look to break even by the end of this year," he said.

H&R Block had double-digit (that is, more than 10) redemptions of downloaded coupons last year, according to Paul Marran, creative director for Brand Dialog, a division of Young & Rubicam in Chicago that oversees the tax-preparing firm's online advertising campaign. Traditional paper coupons might have a 2% redemption rate, he said. And a contest on the site has already tripled the number of entries compared with last year, well short of prime tax season.

COOLSAVINGS CEO STEVEN GOLDEN, pictured here with the company logo, says revenue has grown twelvefold in a year

Meanwhile, Supermarkets Online Inc., which runs two coupon sites including Valupage, said its traffic is soaring. The company handled 645,000 different visitors during one recent week. The Valupage site lets consumers print out a barcoded shopping list good for discounts at 9,000 participating supermarkets.

Ken Cassar, an analyst at Jupiter Communications Inc. of New York, said he doesn't believe coupon sites should be categorized as "Internet shopping," because they aren't conducting transactions. However, no matter where they're classified, Cassar said, "It's a burgeoning category."

There are others besides the category leaders. A major player in direct-mail coupons, Val-Pak Direct Marketing Systems Inc. in Largo Fla., is on the Internet (*www.valpak.com*); another site, FreeShop International Inc. (*www.freeshop.com*) in St. Cloud, Minn., posts free offers from publishers and manufacturers. Others are in the works.

Coupon delivery costs are certainly cheaper over the Internet than by mail or newspaper, Cassar said. But in the current hotly competitive online environment, marketing and advertising costs to acquire new customers can be substantial.

In the short run, he noted, "oftentimes [Web] promotional costs end up substituting for physical-world costs."

SNAPSHOT

World Wide Wait

The average time, in seconds, to download a home page from one of 40 business-related Web sites during business hours for the week of Feb. 1:

Top 5 Best-Performing Web Sites	
Microsoft Corp.	2.82
The Wall Street Journal	3.25
Lycos Inc.	4.50
Hewlett-Packard Co.	4.56
Merrill Lynch & Co.	4.71
Best Areas to Web Surf	
Pittsburgh	3.83
Detroit	4.49
Miami	4.52
Worst Areas to Web Surf	
Norfolk, Va.	23.84
Columbus, Ohio	14.74
Tampa, Fla.	13.68

SOURCE: KEYNOTE SYSTEMS INC., SAN MATEO, CALIF.

Government To Compile E-Commerce Stats

FTC emphasizes consumer interests

BY JAMES NICCOLAI

The federal government will begin separately tracking and publishing statistics about online shopping instead of incorporating them in catalog sales, the Department of Commerce has announced.

Commerce Secretary William Daley and Federal Trade Commission Chairman Robert Pitofsky said the boom in online business makes it more important than ever to protect the interests of Internet shoppers.

Daley estimated that consumers spent $9 billion online last year, a figure he predicted would increase to $30 billion next year.

The proportion of retailers selling goods on the Internet tripled in a single year, from 12% in 1997 to 39% last year, according to Commerce Department estimates.

New figures that break out Internet sales as a separate entity will be available by the middle of next year for 1998 and 1999, Daley said.

Niccolai writes for the IDG News Service in San Francisco.

IBM Teams With Music Makers for Net Test

Will allow albums to be downloaded

BY TOM DIEDERICH

Some online music lovers in San Diego will soon be able to pay for and download full-length albums over the Internet and transfer them to CD or tape.

A six-month pilot program — a joint initiative of IBM and five top recording firms — will start this spring. The pilot will involve 1,000 cable TV subscribers who access the Internet via cable modems, the companies said in a statement.

IBM — along with BMG Entertainment, EMI Recorded Music, Sony Music Entertainment, Universal Music Group and Warner Music Group — said the highly secure system would give consumers fast and easy access to music while protecting the legal rights of those who produce albums.

According to the companies, downloading a 60-minute album will take less than 10 minutes via cable modem.

The pilot program was set up so that IBM and the music companies could gauge public reaction to such a system and to test a wide range of technical issues, such as compression and network delivery.

FOOD FIRMS' FINGERS CROSSED

Supplier readiness is the big unknown, but no shortages foreseen

BY STACY COLLETT

PACKAGED-FOOD manufacturers are well on their way to year 2000 compliance, with 95% of Grocery Manufacturers of America members saying they will beat the Jan. 1 deadline. But industry officials concede there are forces beyond their control that threaten a smooth transition to the new millennium.

For example, industry heavyweights General Mills Inc., Kraft Foods Inc., Nestle SA and Cargill Inc. have manufacturing plants worldwide and rely on developing nations for core ingredients like sugar and cocoa. A failed system in any region could create a domino effect.

"The food industry is part of a very complex supply chain: raw products, distributors, wholesalers, supermarkets," said Lisa McCue, a spokeswoman for the 130-member Grocery Manufacturers of America. "There is concern that other links in the supply chain are not ready."

Without industry-wide regulations, food companies must rely on suppliers' assurances that they will be year 2000-compliant. And government agencies outside North America generally are less willing to provide information about their readiness.

Industry watchers said equipment on the plant floor remains the food industry's Achilles' heel. While orders can be taken by phone or fax and shipping arrangements handled manually in the event of a year 2000 glitch, there's no way to work around equipment failures on the food-processing line.

To avert disaster, Minneapolis-based General Mills hired Raytheon Corp. to take a fine-toothed comb through every one of the 40 locations where its food products are made. Raytheon is analyzing the year 2000 readiness of its key suppliers. Another 200 suppliers have been polled through interviews and surveys.

The surveys offer little concrete evidence of year 2000 compliance, according to analysts, but companies hope the surveys will buffer them from liability down the road.

Kraft also is taking steps to "reasonably ascertain" the readiness of its critical suppliers through questionnaires and the like, according to a Securities and Exchange Commission filing. It plans to spend $550 million on its year 2000 effort and another $150 million to replace equipment.

Food manufacturers already have spent the majority of their predicted $1.8 billion on year 2000 work. Most will spend 12.8% of this year's information technoloy budgets on achieving year 2000 compliance — about half of last year's total of 24.8 % — as they wrap up projects, according to an upcoming report by market research firm Dataquest.

Industry officials foresee no food shortages in 2000 and assure consumers there's no need to hoard their favorite cereal. Food producers have no plans to stockpile their products but will respond to any increase in market demand beginning in July or August.

JUST THE FACTS

Y2K Food Facts by the Numbers:

$1.8B Total being spent by the packaged-food industry on fixing the year 2000 problem

$27M Average being spent on Y2K by most food processors/packagers

$100M Average being spent by larger, multinational food producers

Base: Survey of 87 members of the Grocery Manufacturers of America

Official: Russia's Call for Help Is Actually a Good Sign

Shows that country takes Y2K seriously

On Feb. 3, a Russian official put the cost of Russian year 2000 fixes at $3 billion — six times the original estimate — and asked for aid and advice from the U.S. and NATO. In an interview conducted via E-mail, *Computerworld* reporter Matt Hamblen asked **John A. Koskinen**, chairman of the President's Council on Year 2000 Conversion, to react.

Q: *What's the Clinton administration's reaction to the request for year 2000 assistance?*
A: I am not aware of a formal request at this time. We have been working with the Russians through the Defense Department and others to increase their awareness and activities and have been providing technical assistance.

Q: *Are you surprised by the request?*
A: I'm pleased that they have moved away from their earlier position that the year 2000 problem would not affect them and they'd wait to see if any system failed.

Q: *Does this Russian acknowledgment imply that problems and costs worldwide are going to be greater than expected?*
A: We've been talking about the risks of international failures for the past year. This is why we worked to organize the meeting at the UN in December of senior year 2000 executives from 120 countries and why we've provided a senior U.S. executive to help organize and direct a new International Y2K Cooperation Center, intended to promote cooperation, action and information-sharing among nations. We've also organized, through the Coast Guard, a meeting of major international shipping organizations in London the first week of March.

Q: *Can the U.S. help other countries such as Chino if it helps Russia?*
A: We've provided $12 million to the World Bank to continue its support of international year 2000 activities, along with the activities noted above.

Q: *Would you describe these tremendously increased costs as a grave development?*
A: We have for months been focusing on the challenges the world faces with the Y2K problem. This [Russian] report is simply another indication of the importance of the problem. It looks "grave" only if it's the first time you consider the challenges other countries are facing.

PRESIDENT'S COUNCIL Chairman John Koskinen says he's pleased Russia is aware of its Y2K woes

Philippines Making Y2K Move

BY MELBA·JEAN M. VALDEZ
MANILA

Two bills filed in the Philippine congress seek to grant tax incentives to companies that undertake year 2000 conversion projects and make it illegal to build, import or sell noncompliant systems.

The bills also include incentives for user companies trying to fix their own year 2000 problems. Those could include tax deductions for expenses incurred oo year 2000-related projects or exemption from any import duties on equipment needed for such projects.

The bills closely define criteria for both year 2000 compliance and provide avenues through which consumers can lodge formal complaints. They also expressly ban dumping any noncompliant consumer product or declaring a product is compliant without testing and accreditation. If the bills are made law, those flouting them can be fined and/or jailed for up to six years.

Proponents said the bills could be passed in as little as two months.

Valdez writes for Computerworld Philippines.

SNAPSHOT

Competitor Comparison

Here's how the makers of Pepsi and Coke are reporting their year 2000 efforts:

Fortune 500 rank*	31	68
Spending as of Sept. 30, 1998	$20M*	$60M*
Estimate of total Y2K cost	$130M	$130M to $180M

SOURCE: COMPANIES' LATEST 10-Q FILINGS WITH SECURITIES AND EXCHANGE COMMISSION

CAREER COUNSELOR LINA FAFARD

Hate your job? Then get out!

THINK ALL YOUR colleagues are jumping ship *just* for fat paychecks and sign-on bonuses? Think again. The No. 1 reason people change positions is because they hate their boss — and that includes information technology professionals.

And I have more news for you — if you find yourself in those ranks, your boss probably hates you, too! That makes it very difficult to do a good job, no matter how hard you try.

Are you alienating your family? Is even the dog refusing to play with you because you're so depressed? Please, do everyone in your professional sphere a favor — including yourself — and leave!

In case you haven't noticed, you're in the hottest job market in history and, yes, the grass can be *much* greener on the other side.

Dream for a moment about what the greatest job in the world would be for you. (Time's up.) Now, what's your greatest Plan B job that you can actually do? (Hey, none of us really gets our dream job.)

Perhaps you hate your job because you aren't good at it, or at least don't feel you're good at it. Ask yourself if you're working for a company that overworks you, underappreciates you — or both.

Then ask if that situation can be fixed, if the effort is worth it or if the only way out is to leave.

Leave Your Baggage Behind

Caution: Also ask yourself if your attitude is so bad that even if you left, it would follow you. You don't want to bring emotional baggage to the next IT job.

Make sure you aren't focusing only on the negative — take the positive into consideration, too. If it's truly a grim, no-win situation, then for goodness' sakes, get out now.

Make a list of what you really want in a job, then explore the possibility of doing so in your existing company. If that job doesn't exist in your company, you may want to contact a recruiter and/or search the Internet to find out about the job you want.

Play the Match Game

Factors to consider include the following: job duties, compensation, access to new technologies training, location of those types of jobs, the types of companies, future career paths and so on. Match them against your current job and a job you would consider.

Many people want the ideal job but aren't willing to do the work it takes to get there. If there are specific educational requirements necessary to snare your ideal job, don't hesitate — enroll.

Remember, getting education or training takes time. The sooner you start the process, the sooner you can change your life.

To grow professionally and personally, you must move out of your comfort zone and learn something new.

It's very simple to get the job you want. It could be as easy as listening to a second-language series of tapes during your commute. Perhaps taking a class in public speaking to improve your presentation skills is all you need. Maybe your dream job is just one more technical class away. Discover what you're lacking (hey, you can even ask your "ex," if his or her advice will help), and fix it.

Speak Up or Get Passed Over

If you're any good, your technical skills are in demand. Meet with your supervisor to go over your career goals.

Let him know that it's time for a change. During the meeting, find out what it's going to take to get the next promotion or enable you to do the job you really want.

Don't complain about your current job. Keep the focus on the future and getting the desired position. Determine what skills are needed in that job — not just IT skills, but business, management and communication skills.

Find out what obstacles, if any, your boss thinks you need to overcome to recommend you for the job you want. Although that could be hard to take if you hate each other, it also could be good, honest feedback. At the very least, it will be an exercise in self-control.

If that job is in your immediate department, put an agreement in place that if and when you overcome those particular obstacles, you will get the desired position.

If that new job isn't in your department, tell your boss that you would like to pursue opportunities outside of your department.

Next, contact the human resources department to explain your career desires, to describe the new job you really want and to ask for help in obtaining that position.

Offer a transition plan. Volunteer to find, help and train the person who will replace you prior to moving into your desired position (within reason).

Make yourself available for interviewing replacement candidates and answering transition questions. Agree to a time frame for the transition plan.

Don't let the stress of getting your work accomplished take precedence over getting the job you really want. Stop stewing in it. Take the necessary action to get the job you'll love.

No one is going to knock on your cubicle and hand you your dream job, a raise, a promotion and a great boss. *You* have to make it happen and you can!

Hurry up; your dream job is waiting for you, and it's behind schedule. ◗

On Your Way Out:

1. Research your desired job duty requirements.
2. Make a list of why you would be good at the job and happy doing it.
3. Prepare and commit to do what it takes to get there.
4. Find out where the job is; look internally first.
5. Create an exit and entrance plan.
6. Share your career desires with your boss.
7. Plan your transition to your new, great job.
8. Work your plan.
9. Celebrate!
10. Do it again (continue the process throughout your career).

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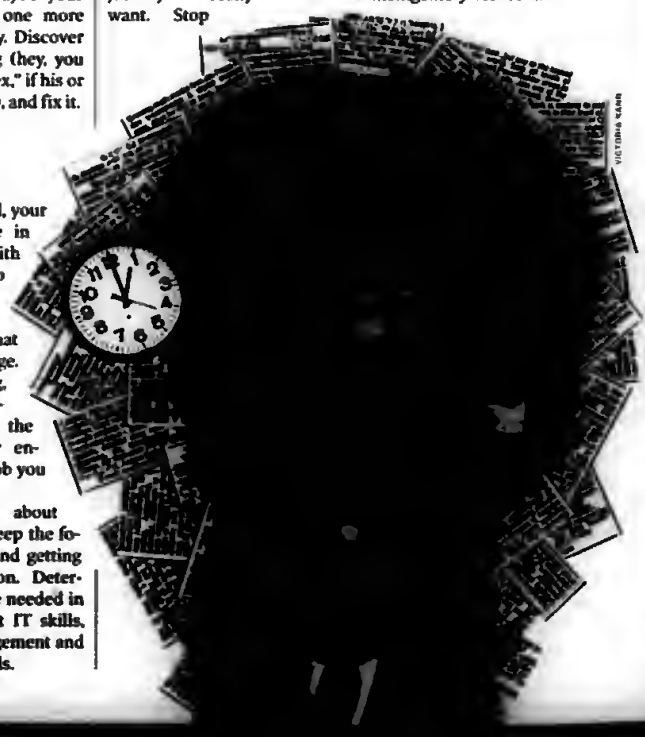

WE JUST GAVE 20

OF THE WORLD'S

LARGEST COMPANIES

VERY DISTURBING NEWS.

And they couldn't be happier.

Discover the truth about *your* Y2K progress. With TransMillennium QUICK*check*™.

Thousands of companies are facing an uncomfortable moment of truth as they start testing millions of lines of renovated Year 2000 code. Companies using QUICK*check*™ have found that, on average, *11% of renovated programs are still not Y2K ready.* Which means testing will be slower, confidence lower, and the chances of meeting the Year 2000 deadline even slimmer.

Fortunately, there's a way to avoid these unpleasant surprises. Call Cap Gemini America for an independent appraisal of your MVS COBOL applications before or after Y2K testing.

In just two weeks, we can show you precisely where we found overlooked Y2K errors, which can help you accelerate testing. This will give you a greater chance of meeting your Y2K deadline, and help in demonstrating due diligence.

The truth about your Y2K progress may hurt at first. But the end result should make you very happy indeed.

For more information and a FREE copy of Cap Gemini America's Y2K Readiness Survey*, call 1-888-Y2K-TODAY or visit www.usa.capgemini.com/y2k.
*Quantities limited

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Up to Speed – Fast

Want new hires to stay? Start them off with a good orientation program that gets them working right away

BY ALAN S. HOROWITZ

THINK ORIENTATION programs for new information technology hires are just nice ways for management to say hello? Think again.

For one thing, they help you hang on to the hard-to-find technowhiz you have just found.

"The first step in retaining an [employee] is a good orientation program," notes Kathleen Alexander, senior vice president of human resources and information resources at hotel giant Marriott International Inc. in Bethesda, Md. Making the employee feel welcome and helping him understand the company's culture can make a "big difference," Alexander says.

And an effective orientation boosts productivity by getting new employees "up to speed very quickly," says Christine Rousseau, CIO at Spalding Sports Worldwide in Chicopee, Mass.

Here are six elements for an effective and efficient orientation program aimed at new IT hires:

1. The Big Picture: When Ben Zipkin was hired last year as manager of Internet programs at Renaissance Worldwide Inc., a Newton, Mass., consulting firm, he wanted to learn right away "what my role is on the team, what my directives are, what the strategies are and, most importantly, the overall vision." Renaissance's new-employee orientation program addressed his needs with a twofold approach.

First, a corporate orientation program conducted by the human resources department gave him standard information on topics such as benefits and vacation time. That was followed by a department-based orientation from his manager. It included discussions of group strategies and goals and the relationships among all group members. After participating in the program, Zipkin says, he understood his position in the group and where it wanted to go.

But that doesn't happen at every IT shop. Bob Zawacki, professor emeritus of management at the University of Colorado in Boulder and head of consulting firm Zawacki and Associates in Colorado Springs, says many companies excel at orienting new hires to basic nuts-and-bolts — human resources policies, benefits and so on — but stumble in providing an overall vision.

2. Mentors/Buddies: Mihir Dsai, an associate at the accounting and consulting firm PricewaterhouseCoopers in New York, says his orientation program made sure he never felt alone. On his first day last June, he says, he was assigned a "buddy" (a peer with up to a year's experience) and a "coach" (a senior person). They helped cover all bases. The peer helps Dsai get oriented, answers basic questions and updates him on important inside news such as a recent E-mail on hot company projects. The coach addresses professional development issues. In addition, Dsai had his orientation class of 20 or 25 new hires to lean on. They were encouraged to quickly establish a network among themselves; it continues today, largely via E-mail.

Ryland Harrelson, vice president of human resources at credit-card processor Total System Services Inc. in Columbus, Ga., says he considers mentoring vital in keeping employees. "If you don't like the quality of your supervision, you won't stay." Harrelson recently came to Total System Services from Sears, Roebuck and Co. in Hoffman Estates, Ill., where he cut the annual turnover rate by more than half, from the 17%-to-18% range to 7% to 8%. Mentoring was a chief reason for that decline, he says.

3. Be Prepared: No one likes to wait for a desk to sit at or for someone to show them the ropes on his first day. Xerox Corp. knows that and makes sure everything is in place ahead of time. "We have all things situated before they even start as far as having all their computer equipment ready, their phone, their voice mail, their E-mail," says Patrina Cole, a human resources analyst at Xerox's information management department.

Terri Kemmerer, human resources manager for IT at the agriculture and food company Cargill Inc. in Minneapolis, created a first-day orientation checklist for managers that covers everything from department policies and procedures to assigning a mentor to explain the employee's job, including the correct method of accomplishing the job, whom they report to and the standard of expected performance.

4. Training: Spalding provides new IT employees with two weeks of training, including teach-me modules that deal with such technical topics as data organization and how to operate the company's Hewlett-Packard Co. minicomputers, Rousseau says. Greg Myers, human resources director for the systems integration consulting unit at PricewaterhouseCoopers, views the training needs for experienced and inexperienced newcomers differently. When more-experienced people are hired, "it's usually for a specific job, and they're put to work right away, which I think is very, very important. With [recent] college [graduates], we put them through training" on technologies and consulting practices. Everyone receives two or three days of basic orientation, which includes an overview of the organization, specifics about the firm's many databases and standard human resources information.

5. Interesting Work: If those lowest on the food chain get only the crumbs, don't be surprised if they don't stick around long enough to be served a decent meal. "People who have been around for five or six years don't necessarily believe that newer people are appropriately qualified, so they give [them] uninteresting and routine jobs that would turn off just about anybody," says Diane Tunick Morello, a research director at Gartner Group Inc. in Stamford, Conn.

"If you can put new people under a good project manager and [give them] interesting work, that's the most important thing there is," Zawacki adds.

6. Ask and Learn: You may think you know what a good orientation should be — but maybe you don't. Alexander is now asking new hires about a month into their jobs what they thought of their orientations. She will use the responses to help hone her program.

Horowitz is a freelance writer in Salt Lake City. His E-mail address is alan@ahorowitz.com.

NEW REPORTS

IDC Explains Seat Management

International Data Corp. in Framingham, Mass., has released a bulletin that explains the concept of seat management and how it can minimize desktop costs at midsize to large companies.

Titled "Seat Management: A Concept Designed to Minimize the Total Cost of Ownership," the report outlines an 18-month pilot project for evaluating which seat management functions are the best candidates for outsourcing.

Those include asset management functions, LAN and WAN network administration, help desk activities, hardware maintenance, installation of software upgrades and server management.

The report costs $1,500.
www.idc.com

Europe Strong In PC Sales

European PC shipments grew 23% last year, surpassing 26.1 million, according to new research from Dataquest. The San Jose, Calif., company found that the consumer segment drove the overall market, with customers motivated to purchase PCs so they could connect to the Internet.

The Western European market was particularly strong, showing its largest growth (26%) in a decade.

The research is available in Dataquest's report, "PC Quarterly Statistics Europe." The report costs $5,000.
www.dataquest.com

Shopping Survey

Zona Research Inc., based in Redwood City, Calif., has announced a 75-page report on online shopping, based on a holiday shopping survey of 1,022 Internet users. The report – "1998 Holiday Shopping: Is Web-based Buying Reaching Critical Mass? – says that more respondents purchased gifts online (53%) than shopped via paper catalogs (40%) last year.

Respondent profiling and demographic information is provided.

The report costs $895.
www.zonaresearch.com

BRIEFS

CSC Team Gets Postal Contract

The U.S. Postal Service has awarded a contract potentially worth $198 million to a systems integration team led by Computer Sciences Corp. The contract is intended to develop and implement a payroll/human resources system for the U.S. Postal Service, which has 875,000 employees.

Y2K Bookings OK

Amadeus, the Madrid-based travel industry service, said it has successfully processed more than 500,000 airline bookings for year 2000 travel on nearly 300 different carriers from around the world.

Show Me The Money

What perk would increase your loyalty to your employer?

A raise	43%
Improved benefits	23%
A more flexible work schedule	14%
Stock options	9%
Better training	5%
Don't know	6%

Base: 660 working Americans

SOURCE: BRIDGEGATE LLC, IRVINE, CALIF.

ED YOURDON

Shape up or ship out

DURING THE NEXT few months, year 2000 project managers will trigger the largest shift in business-to-business relationships in modern history. Most organizations now have a long list of vendors whose year 2000 status is either unknown or highly suspect. The moment of truth is approaching: If they aren't ready, it's time to stop doing business with them. We've been talking about this for months in year 2000 project teams across the couotry. We've contioued to hope that our key vendors will somehow accomplish a miracle and convince us they're going to be ready. But the decision to switch will have to be made this spring. The decision may have to be ratified by senior management, or eveo by a board of directors' resolution, but it will be based oo the recommendations of the year 2000 team.

The most obvious remedy is to replace the noncompliant vendor with a compliant one. But such a switch is painful, expensive, time-consuming and risky. A Fortune 500 company doeso't casually change its primary banking relationship or telecommunications vendor overnight. Consequently, a transition from bank A to bank B, or from telecom vendor X to telecom veodor Y, has to be done sometime during the first half of this year so that the new relationship can be established, new computer systems installed, new computer interfaces tested and the inevitable glitches resolved. Nobody in his right mind is going to attempt such a major transitioo in the fall; it would be like playing Russian roulette with five live bullets.

Be prepared for some arm-twisting from senior management.

What makes this potentially explosive is that the same decisions will be made at approximately the same time all over the country. If a single Fortune 500 company decides to switch its relationship from telecom veodor X to telecom vendor Y, it probably wouldn't be catastrophic for X. But if 10 or 20 or 100 of the Fortune 500 companies abandon X because of a common perception that X is unlikely to finish its year 2000 work in time, it will have profound consequences — especially if X is itself a Fortune 500 company.

Once that begins to happen, there may be a sea change in business-to-business relationships that could make the investment banks, mutual funds and brokerage firms begin scrambling to shift their own funds out of the perceived "losers" into the perceived "winners." The politics surrounding all this would be intense; the CIOs of "loser" vendors should be prepared to be in the spotlight several months before Jan. 1, 2000.

You should be prepared for some arm-twisting from senior management as well as requests for continued procrastination. Your CEO, for example, may call you into his office and say, "I know you're concerned about the lack of cooperatioo we've been getting from the year 2000 team at XYZ Co. But the CEO of XYZ and I were playing golf last weekend, and he personally assured me that they would be ready. So I'd appreciate it if you would rethink your recommendation tu switch suppliers." Or you might get a call from the chief financial officer, who'll say, "I know you've been threatening to pull the plug on our telecommunications provider because of its lack of year 2000 progress, but do you realize what it would do to our profits this year if we switch? I really think we should wait another three to six months before we make such an important decision."

Ultimately, tbe decisions will have to be made by the CFO, tbe CEO or the board. But if things turn sour at the end of this year because senior managemeot dawdled, you're likely to find that their memory of early 1999 suddenly is fuzzy. Thus, it's crucial that your advice and recommendations about the year 2000 supply-chain risks be loud, clear and unequivocal. This is indeed the moment of truth with regard to mission-critical suppliers. Doo't let your senior management forget it.

Yourdon heads the year 2000 service at Cutter Consortium in Arlington, Mass. His most recent book is Time Bomb 2000. *His Internet address is ed@yourdon.com.*

Loves bossa nova Aficionado browses music st[illegible] th[illegible]
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IBM

State Street Bank's change in direction required a new IT approach. Here's how CEO Marshall N. Carter steered the ship By Kathleen Melymuka

THE CEO

NAME Marshall N. Carter

TITLE Chairman and CEO of State Street Bank and Trust Co. and its holding company, State Street Corp.

AGE 58

PERSONAL Married, two children

EDUCATION Bachelor of science, civil engineering, U.S. Military Academy at West Point; master of science, operations research and systems analysis, U.S. Naval Postgraduate School; master of arts, School of Public and International Affairs, George Washington University.

EXPERIENCE Former Marine Corps officer, two tours of duty in Vietnam, awarded Navy Cross and Purple Heart; White House Fellow at State Department and Agency for International Development; Chase Manhattan Bank Corp., 1976-91 (last position: chief of global securities services).

HOBBIES Commercial pilot, flies his sea plane near his summer home.

MARSHALL N. CARTER has changed the course of the venerable State Street Bank and Trust Co. in Boston since taking the helm as CEO in 1992. At that time, State Street was a highly centralized investment bank focusing on asset custody: keeping the accounts of institutional investors such as corporate treasurers, pension plan managers and mutual fund managers. It also was highly successful, boasting 15 straight years of double-digit revenue growth.

But Carter was convinced that the bank had to broaden its focus to asset management: the decisions and activities involved in trading securities. He found that changing a successful strategy was easier said than done. The bank's technology, though formidable, was basically a humongous bookkeeping machine.

The technology requirements to play in the asset management markets were different — and staggering: The bank would have to gather, coordinate and analyze enormous volumes of data from around the globe — capabilities based on huge, mainframe-oriented, transaction-processing engines. It also would have to provide user-friendly, PC-based, Internet-enabled tools to let the bank's customers — institutional investors — access and manipulate that data for their own purposes.

Simultaneously, Carter would have to retool a highly centralized, tightly controlled corporate culture into one with independent businesses working in an entrepreneurial style.

"It was as if you had an auto company and all you made was pickup trucks," he explains. "All of a sudden, you need to make sedans and station wagons. How do you actually develop those from a truck assembly plant? How do you get people to sell them, service them, put bells and whistles on them so you can make more money than with this plain-vanilla pickup truck?"

In just over six years, it's a done deal. Carter has reinvented State Street, transforming it from a bank using technology to serve its customers to an information technology company providing state-of-the-art tools and services to its customers. The bank's total revenue, profits and earnings per share more than doubled during Carter's first five years, and last year marked the 21st consecutive year of double-digit growth. Revenue was up 17%, the asset custody business grew by 23%, and assets under management did one better: up 24%.

Last year, Carter won Gartner Group Inc.'s Excellence in Technology Award, and his vision has been widely praised. "He is an excellent CEO," says Heather Bellini, an analyst at Lehman Brothers Inc. in New York. "If you talk to competitors about who runs the business the best way, people always mention State Street."

Still, success hasn't come cheaply. The bank's technological bells and whistles have come at the expense of some basics, and Carter's liberal spending habits sometimes make Wall Street nervous. But Carter, a Vietnam War veteran, is unfazed by his critics. "In business, they don't shoot real bullets at you," he smiles, "just paper bullets."

OLD NEW

BANK, IDEAS,

Charting a Course

In 1792, a group of Boston ship captains founded State Street Bank, and the organization sailed straight until the 1970s when CEO William Edgerly steered away from traditional banking to asset custody. The bank found a niche in the processing-intensive business, and by the time Carter became CEO, State Street already had become a processing powerhouse.

But if the bank had begun to look like a technology machine under Edgerly, it began to think like one under Carter, who's known for long-term, strategic planning and has little patience for shortsightedness. "I've worked for organizations where strategic planning was thinking about what you were going to have for lunch," he says. But Carter was looking beyond the bank's success to how it could retain its edge during the next 20 years.

This is what he saw. The securities investment process has three phases: pretrade, in which you analyze the market; the actual trade, in which you settle accounts; and posttrade, in which you maintain records. Research showed that the posttrade part of the cycle, which the bank emphasized, accounted for only 16% of the revenue potential. Trading was 60% and pretrade, 24%. "So if we wanted to continue to grow, we had to broaden our product line," he explains.

Re-rigging

To spur growth in the asset management business, Carter had to jumpstart the bank's technological brainpower and blow away the competition with speedily developed state-of-the-art products. He did that by breaking down the centralized State Street culture into separate businesses, each with its own CIO. "My predecessor was brilliant," he says, "but every decision came to his desk. I had to decentralize decision-making, authority and — even harder — entrepreneurship and innovativeness. I wanted to have *them* make the decision."

Carter demanded that each business take responsibility for its technology. For example, the head of global foreign exchange trading was given responsibility for delivering Global Link, a huge technological success. It gives institutional investors PC-based tools to analyze foreign exchange markets and perform trades online, putting the bank smack in the middle of the pretrade/trade markets. That development strategy, which cuts down on the back-and-forth between businesspeople and techies, cut development time for Global Link in half, Carter says.

"Business and tech people work hand in hand," says corporate CIO John Fiore. "I attribute that to the philosophy that Marsh has."

That philosophy is simple: Technology is the business. "We're not using technology to augment some manual process," Carter says. "We could never go to a manual process."

From Global Link to In-Sight, an Internet-enabled, online system that delivers products to help pension managers analyze and adjust their portfolios in real time, Carter's technology products have wowed Wall Street. "State Street has been an amazing story," Bellini says. "It has great people on the technology side, and they have a lot of great ideas in their pipeline that they can tap at any time."

View From the Bridge

Carter's style is highly personal. He's known for calling anyone anywhere in the bank to get the pulse of an issue. "He doesn't get hung up by titles or levels in the organization," says John R. Towers, executive vice president of global operations.

Fiore recalls that when he was technology chief for a small line of business at the bank, Carter often would show up at sales presentations. "I can't tell you how much of an impact it had on me as an employee — let alone on the client — to have the chairman of State Street fly in," Fiore says. "You can't help but get geared up to run through brick walls when you see the chairman take time to do those kinds of things."

Carter approaches technology as a bit of an insider: One of his three degrees is in systems analysis. "For a CEO of an organization the size of State Street, he's very tech-savvy — in some ways maybe too tech-savvy," Fiore laughs. "He's always coming up with ideas. He's always challenging you."

Carter balances his technology know-how with a CEO's vision. Five years ago, when the bank was developing software to translate between mainframes and distributed networks, the technologists anticipated a couple million transactions per day, but Carter demanded that the system's capacity be limitless. It now routinely handles 150 million transactions daily. "One of our underlying principles is to make things scalable so there's never an upward bound on what can happen," he says.

Spending Strategy

But that principle requires liberal spending, and lately, there have been some grumblings on Wall Street that State Street's expenses have been growing faster than revenue.

Fiore's response: State Street should be judged as an IT company, not a bank. "The metrics that drive our business are very different from those of a retail bank," he explains. *The Economist* magazine agrees, reporting in its July 13, 1996, issue that although State Street's spending/revenue ratios are unfavorably high compared with U.S. banks, they're highly competitive when compared with information management firms such as Electronic Data Systems Corp. and First Data Corp.

Carter is unapologetic for the spending/revenue picture. "I told them I was managing the company on a strategic track and we had to reinvest now," he says. "Wall Street didn't like that at all. All they wanted was a quarterly number."

Carter acknowledges that he has spent freely. "Sure, we probably spent millions of dollars that we might not have had to spend, but that's the price you pay [for] speed," he says.

That price may have been a down payment on the future, Bellini says. "It appears that they will continue to gain share in most of the markets they're in."

Carter also acknowledges that in his quest for creativity, he has shortchanged some of the basics. For example, the technology powerhouse still has no companywide E-mail system. But he hesitates to impose standards on the businesses. "If you're really going to focus on revenue growth," you have to give the charge to your business executives.

Still, he says, "There's a balance, and we're beginning to say we need to balance it better."

Achieving that balance is part of Carter's challenge to continually reinvent the bank, but that's the kind of challenge he likes best. "That strategic plan is 6 years old now," he says with undisguised eagerness, "so we're in the process of figuring out what we do into the next century." ◗

Melymuka is Computerworld's senior editor, management. Her E-mail address is Kathleen_Melymuka@computerworld.com.

THE COMPANY

State Street Bank and Trust Co.

ASSETS UNDER CUSTODY:	$4.8 trillion
ASSETS UNDER MANAGEMENT:	$485 billion
ANNUAL REVENUE:	$2.6 billion
GLOBAL SCOPE:	Does business in 82 countries
EMPLOYEES:	16,800
SECURITIES-RELATED TRANSACTIONS PER MONTH:	2 million
CASH MOVED DAILY:	$200 billion
WEB SITE:	www.statestreet.com

GET ME OUTTA HERE!

Low staffing. High stress. Long, long hours. For many IT professionals, the No. 1 requested benefit has become . . .

TIME OFF!

POLLY BERGEN

BY MARY BRANDEL

Two very different information technology professionals, two very different attitudes about balancing work and time off. Increasingly, however, it's the Weissenbuehlers of the world whose needs and desires companies must respond to (see exhibits at right). That is, if they want to sustain or improve their retention rates.

"Right up there with salary is time off with families," says Diane Thom, human resources manager at Comerica Inc. in Auburn Hills, Mich. Comerica surveyed employees three years ago and instituted policies such as a 9/80 program to soothe the ruffled feathers of the overworked. "I just think the whole attitude in life today is that people want more time off," says Donald Schuman, vice president of information services at Ace Hardware Corp. in Oak Brook, Ill.

Exacerbating this general change in attitude is the industry's overdemand and undersupply of technical talent, according to Mark Polansky, managing director of the IT practice at New York-based Korn/Ferry International. Add to that the increased demand for IT projects, plus year 2000 and electronic-commerce projects, and you've got a "really stressed-out situation," Polansky says.

In addition to retention bonuses and other goodies thrown at qualified IT people, more companies are offering enticements such as extra personal time and "a general accommodation to give-and-take," Polansky says. For example, if an employee endures grueling hours on an important project, he might be rewarded with three days' vacation.

That's the case at Ace Hardware — up to a point. "We're willing to give programmers comp time or paid overtime," Schuman says. However, because of the skills shortage, "we're tending to want to pay them for overtime rather than with comp time," he adds.

But many workers would rather get the time than the money. "We've seen people walk away from significant bonuses rather than deal with the continued stress of long hours," says David Dell, research director at The Concours Group, a consulting firm in Kingwood, Texas. And at Coors, where approximately 60% of employees take advantage of the 9/80 program, workers also can buy up to a week's worth of extra vacation time.

At Ace, newer employees with just two weeks' vacation have requested deductions from their paychecks that go toward extra days off. "We can bank holidays and vacation days and put the money in a savings account. But I'd rather take the days," says Chris Deboo, manager of the corporate IT operations and networks at Ace.

Ironically, in Deboo's case, it's flexible hours and telecommuting that have formed her attitude. Ever since her first child was born, "my work schedule has changed dramatically," she says. Although she still logs many hours, less of it is in the office and more is at home, where she has E-mail and voice-mail capabilities.

Because it has gotten more difficult to separate work from home, "I really need the mental break of vacation, that feeling of, 'I'm out of here,' " Deboo says. Once on vacation, Deboo says she has to exhibit some real discipline not to check back with the office. "On my last vacation it was a chore, but I didn't even log on to check E-mail. Of course, I had 100 E-mails when I got back into the office," she says.

Companies that have increased time-off opportunities don't attribute their better retention rates to these practices. But with turnover numbers as low as Coors' (less than 5%) and Sears' (6%), vs. industry averages of anywhere from 12% to 20%, you have to wonder. "A good strategy for dealing with the personal-time needs of employees can certainly increase retention and improve recruiting batting averages," Dell says.

Brandel is a freelance writer in Norfolk, Mass.

EXHIBIT A:

Matt Weissenbuehler is a project manager in the year 2000 effort at Coors Brewing Co. He lists his priorities as life first, work second. He *tries* to limit his hours to 40 per week, but that's getting tougher given the looming millennial deadline.

But Weissenbuehler feels so strongly about getting time off that he helped institute a "9/80 program" at Coors in which employees can work an extra hour per day for nine business days in exchange for every 10th day off.

"I carry a pager at all times, but if I'm on vacation or out of town – tough luck," Weissenbuehler says. He does, however, concede to checking voice mail. Time out of the office is very important. "It's how I keep my sanity," he says.

EXHIBIT B:

Bob Uhrina is a manager of Internet-related systems at Sears, Roebuck and Co. He works 10- to 11-hour days. His last vacation was a year ago. In addition to his luggage, he brought his laptop computer to check E-mail (which averages 60 messages daily) and the Web hosting site daily.

Uhrina wakes up at 5 a.m. and checks his E-mail before arriving at work. "I enjoy what I do. It's more of a hobby," Uhrina says. "So the issue of time off vs. time spent at work is not an equation that's on the top of my mind."

Time Is on My Side (Yes It Is)

What if your company doesn't have any formal policies in place to give employees flexibility or extra time off? Or maybe you feel you aren't able to clear your desk in order to get the vacation time you need? In those cases, take a hard look at how you prioritize your work. "I would ask the question, 'Am I really spending all my time on the most important things the organization is trying to focus on, or am I off on some tangent?' " says Bob Uhrina, manager of Internet-related systems at Sears.

"If the management team doesn't recognize the amount of effort you're putting in, establish what is important, put it on paper and agree on it," Uhrina says.

Often, information technology managers aren't fully aware of what flexibility is available inside the organization, says David Dell, research director at The Concours Group. So you may need to research what arrangements are available to meet your individual needs.

Many employees simply expect the company to be as flexible with its time as they are with theirs. "I get calls at 2 in the morning, and if something's broken, I don't leave until it's fixed," says Drew Dellardo, a project manager at Solo Cup Co. in Urbana, Ill. Dellardo recently earned a few extra vacation days because of a particularly grueling November spent integrating the systems of a newly merged company.

But no one is going to balance work and life for you. "You have to determine what is important – whether it's your boss or some customer that says, 'How dare you not spend 20 hours of extra time on my problem?' " says Matt Weissenbuehler, project manager at Coors. "Is this truly a situation where you have to work, or is someone going off the deep end? You have to be thick-skinned about it."

— Mary Brandel

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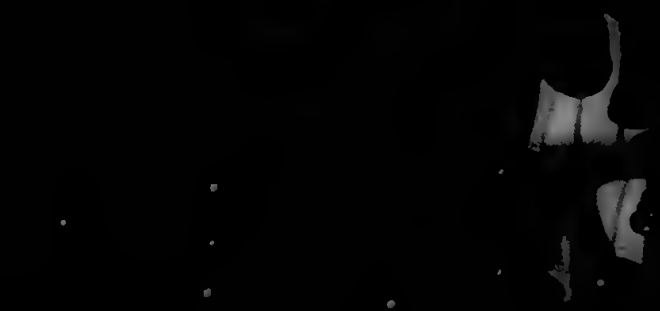

MAKE MORE MONEY NOW!

Sure, your paycheck is bigger than it was a year ago, and bonuses are getting fatter and more frequent. But it's not enough. You want more. Much more. All you can grab. Here are some tips on how you can get the boss to loosen the purse strings

By Thomas Hoffman

TOP 10 TIPS

ON WHAT IT TAKES TO SHARE THE BOSSES' LOOT

10 The Nose-to-the-Grindstone Award

For managers such as Mike Altiero at American International Group Data Center Inc., employees don't have to make "a big, glitzy achievement" to get due attention. Information technology managers know what it takes to get the job done day in and day out. Most of them came from the trenches.

For Altiero, who oversees network operations and enterprise management at the Livingston, N.J., insurer, fixing a light on a network management console "may not sound like much, but it's important because it's the technical, behind-the-scenes type of stuff I can see as a manager."

9 The Building-a-Better-Mousetrap Trophy

Companies continue to chant the Michael Hammer reengineering mantra of the mid-90s, even if it has been brought to a low hum. But as managers are forced to squeeze as much productivity out of as few employees as possible (can you say "downsizing"?), it's becoming more difficult to spot opportunities for process improvements and act upon them decisively.

That's why The Allstate Group's Mike Jaslowski would be willing to shower cash on any IT staffer capable of dreaming up brilliant ways of improving efficiency — such as identifying a spot for an intelligent agent where none currently exists.

Being an IT guy himself, Jaslowski, director of enterprise systems management at the Northbrook, Ill.-based insurer, might be assumed to be biased when it comes to criteria. "All IT people everywhere are underpaid, so they all deserve big raises," Jaslowski says.

8 The Making-IT-and-Business-Play-Nice-Together Prize

End users always say nice things about their IT departments — when it's on the record. Off the record and by the office canteen, however, the language often used to describe IT probably would shock even Andrew "Dice" Clay.

Members of BankAmerica Corp.'s call center sales force say "those chip heads don't understand what we're doing," says Randy C. Swift, senior vice president at the Richmond, Va.-based bank. "So we [offer IT incentives] to share in the goals of our call center projects" through bonuses and other reward programs.

The notion of having cross-team incentives for the business and IT folks to share "is starting to take off" at KeyCorp in Cleveland, says Patrick J. Swanick, vice chairman at the bank.

7 The You-Did-Something-Right Grant

IT professionals "usually aren't recognized until something goes wrong," notes Robert J. Hutchinson, head of channel management at Michigan National Bank in Farmington Hills. That's why the bank makes an effort to recognize its IT employees when they do things right "as a key part of rewarding and retaining our top employees," he says.

Cash incentives tend to work well for sales jobs, and noncash incentives such as paid vacations work best for service positions, including IT, says Bridget Compton, vice president and head of compensation at SunTrust Banks Inc. in Atlanta.

6 Learn the Business and Win a Free Trip!

Indeed, the lure of traveling somewhere exotic — and we don't mean heading off to a regional office to help burn in a new LAN — is appealing to many IT professionals. Amadeus National Marketing Cos., a Miami-based marketing arm of the international travel reservation organization, is setting up a travel program to reward IT employees who show an understanding of the business "beyond their technical expertise," says Jim Davidson, president and CEO of Amadeus NMC.

"It's one thing to go out and get top-notch application programmers to have something fun and exciting to work on, but [the program is] also intended to help them [expand] the business," Davidson says. "We're not a public company, so we can't offer stock options."

But it can offer, for example, a cruise for programmers who finish a project ahead of schedule. Not a bad carrot.

5 The Entrepreneur-of-the-Year Award

By and large, IT professionals are paid to fix problems, not to dream up new revenue opportunities for their companies. Still, IT managers say they would handsomely reward staffers who thought up brilliant schemes to help the business.

"We're probably an odd place to look since we're a trade association, but what leaps out at me are people who can think of ways of reaching a new segment of retail that hasn't been tapped before. I would reward that," says Cathy Hotka, vice president of IT at the National Retail Federation, a Washington-based trade association.

4 The Innovation Investiture

Managers also are willing to reward employees for simply thinking of better ways of doing things. "We value innovation," says Linda Libbey, director of strategic recruiting and retention at United Healthcare Corp.'s strategic business services group in Hartford, Conn.

To reward its IT employees — including entry-level workers — for innovative ideas, United Healthcare has created the Star Award. Given at least once a month, the program honors both IT teams and individuals for thinking outside the box.

United Healthcare IT employees are eligible to win cash, trophies and T-shirts in addition to the citations of their achievements that the company posts on its home page (*www.unitedhealthcare.com*). Cash awards range from $50 to $1,000.

3 The 999,999-Lines-of-Code Endowment

Doing something well — and doing it right — is enough to catch the attention of IT executives such as Mike Tiernan, vice president of IT at CS First Boston Corp. in New York.

"Everyone [in financial services] is focused on EMU [Economic and Monetary Union conversion] and year 2000. There isn't much going on in new projects or enhancements that would knock our socks off. So what we would reward is outstanding work associated with EMU and Y2K, making sure that our systems are compliant," Tiernan says.

2 The Self-Starter Certificate of Achievement

"The things that knock my socks off are people who seek the undiscovered without being told to do it, pull it together and find an opportunity for the business to become more efficient," says Irene Dec, year 2000 program director at The Prudential Insurance Company of America in Newark, N.J.

Dec points to a staffer who recently put together a document at Prudential called "The Year 2000 Frozen State." It identified specific areas where software projects would be "frozen" in 1999 because "you can't just make a blanket statement that year 2000 is going to stop all IT projects," Dec says.

And the No. 1 way to impress the boss enough to win that big raise or bonus you've been seeking:

1 Just Stay!

. . . pleads SunTrust Bank's Compton, a sentiment that's easy to understand given the current IT labor crunch.

Hoffman is senior editor for IT management at Computerworld.

DRIVING THE DEAL/JOE AUER

Small and Hungry Beats Big and Sluggish

IN SEVERAL RECENT multimillion-dollar deals, including an outsourcing initiative at a Midwestern bank and a security project at a major consumer products company, the procurement teams selected regional or niche suppliers over much bigger international, full-service providers. This came as a surprise to the procurement teams. They expected going in that they would select the larger suppliers. It turned out the smaller organizations were more flexible and responsive and showed a greater sense of urgency and commitment to getting results. In contrast, the teams perceived the larger organizations as sluggish, bureaucratic and arrogant.

How did these negotiating committees come to their conclusions? These weren't seat-of-the-pants evaluations. They used sound requests for proposals (RFP), negotiations and selection processes to evaluate the larger and smaller suppliers. The process enabled them to uncover that the smaller suppliers were more willing to contractually commit to deliverables.

The tip here? When you send out your RFPs, include a customer-developed, user-oriented contract with performance and reliability standards, specific deliverables, clear and specific warranties and remedies for the customer in the event the vendor doesn't perform as represented. Require potential suppliers to accept, reject or modify to their liking each provision in the contract as a bid requirement. You'll get better contracts this way because the suppliers will know they're competing on the contractual terms (and know they could get eliminated if their response isn't good enough). This also makes your evaluation of suppliers much more complete and competent. Together, they will help you sort out which suppliers will deliver what you want.

Negotiating Outside GSA Box

Here's a vendor ploy I'm hearing about more and more. This one is increasingly being used against private companies and government agencies.

It plays out like this: A customer asks for deeper discounts or lower pricing than the vendor is willing to extend. The vendor denies the customer's request because "our contract with the General Services Administration [the GSA is the federal government's central procurement agency] won't allow us to give you that price."

Never accept this response; it's nothing but a lie. There are many loopholes that allow suppliers to provide better deals to you than they provide to the GSA. Remember, GSA bureaucratic contracts sometimes maximize pricing, yielding those infamous $300 hammers and $400 toilet seats.

One of the easiest loopholes is to structure a deal dissimilar from that of the GSA (GSA contracts and pricing schedules are public information). Here's a tactic I hear was used in a recent negotiation: Ask the vendor to extend the 1996 or 1997 price list to your current contract.

This allows vendors to extend discounts consistent with those in the GSA schedule but gives you net pricing approximately 5% to 10% less than what the GSA contract dictates.

How Much Does Software Cost?

I often hear buyers ask this question. What I don't hear is a good answer. Purchasing managers and often end users look at software licensing like buying equipment. The rights to use someone's intellectual property isn't like buying equipment. First of all, you won't own the software. You'll just have some highly restrictive rights to use it. Second, software costs nothing except the price of copying it onto the CD.

So how do vendors price their software? The list price depends on supply and demand, perceived value, the price the vendor needs to get to stay in business and, to a certain extent, what's charged for similar products to similar customers. But what you'll actually pay depends on your negotiating power. The tip? The price of software isn't about their costs or your ownership. It's about how well you can bargain.

Joe Auer is president of International Computer Negotiations Inc. (www.dobetterdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joe@dobetterdeals.com.

Competitive Process Helps

In a recent $1.5 million deal, a large health care organization gained several hundred thousand dollars in initial savings on desktop hardware and software through a highly competitive procurement process.

It did it by negotiating on price with three, then two, suppliers simultaneously — once the customer determined the suppliers were capable of providing the appropriate quality of services and the deals on the table were comparable.

Keen competition enabled the customer to lower the supplier's price significantly. And those initial savings will be multiplied many times, owing to the rights, remedies and flexibilities it also negotiated into the contract. It pays to remember that selection shouldn't precede negotiations, but be a result of them. ◗

WORKSTYLES

What's it Like To Work at . . . Kendall Co.

Interviewee: Sheila Mullaney, systems analyst, help desk.

Company's business: Manufacturer of health care products.

Location: Mansfield, Mass. (40 miles south of Boston)

Information technology staff: 55. **Total employees:** 350 on-site, plus remote offices and a mobile sales force nationwide.

Dress code: Business casual (most men don't wear ties; women usually go for dressy pants).

Workday: 8:30 a.m. to 4:15 p.m.; some departments have flextime. IT staffers often stay until about 6 p.m.

Kind of offices: New five-wall cubes are being installed. Most windows are in offices, not in cubes.

Computers: About 60% are Dell desktops, and more and more people have portables.

Ergonomic devices: Headsets, keyboard trays and mouse pads with wrist support.

Do people use their CD-ROM drives to play music? Yes.

What CDs do people play? Classical music, Neil Diamond, country music; a lot of programmers use their headsets, so there's no telling what they're listening to. Sometimes you won't hear any music at all, and other days, you might hear five or six different kinds.

Any singers in the office? Some singers, but mostly hummers.

Most IT staff carry beepers? Yes.

Percent of IT staff that telecommutes on a given day: Pretty much no one, unless it's a really bad snow day or an ice storm.

On-site day care? No.

In-house cafeteria/food service: Yes (rates a 7 on a scale of 1 to 10).

Best lunch bet? There's a great salad bar with different soups available every day.

Free refreshments: Coffee, tea, hot chocolate and spring water.

The one thing everyone complains about: A lot of people wish we had better coffee – they think it isn't very flavorful. Some people have coffee makers on their desks.

Where the office gossips: In the coffee room, which is where the toaster and microwave are located.

Favorite item in the coffee room: The candy machine.

Favorite item in the candy machine: Snickers bars – they're gone a day after machine is filled.

Little perks: An active employee appreciation program, through which you get a tin of popcorn or free movie tickets.

Last companywide/department perk: Movie tickets.

Would employees feel comfortable E-mailing the CEO? Yes.

Quote: "People like each other. Because we are in the transition of moving our cubes around, it's a little hectic right now, but I think people enjoy working here."

– *Leslie Goff*

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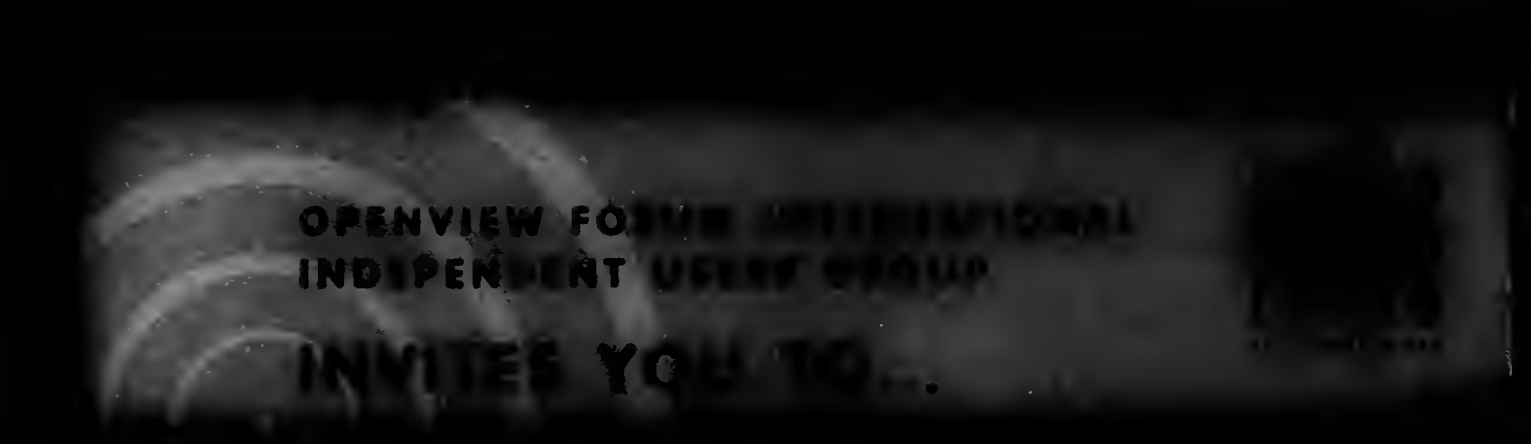

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TECHNOLOGY

SQL 7.0 SQUEEZE?

SAP has cast its lot with Microsoft's SQL Server 7.0, but analysts warn that limitations of the underlying operating system, Windows NT, will cap the size of ERP applications running on the database. ▸ 62

STOP JUST ADDING SERVERS

With hungry apps like ERP and E-commerce consuming resources, IT increases its focus on a variety of capacity planning tools. ▸ 64

UPGRADE TO SMS

A new version of Microsoft's Systems Management Server lets IT choose which groups software are pushed down to, instead of being locked into an entire domain or single machines. ▸ 62

FRANKLY SPEAKING

Our fancy metrics aren't working, Frank Hayes writes. To find out how your IT projects are doing, apply Alan Turing's simple rule: Do half the users think your systems work? ▸ 74

XML SERVERS

With XML use expected to skyrocket, vendors are starting to ship stand-alone XML servers. The goal is to make it easier for IT managers to exchange data with their business partners. ▸ 63

NORTEL NET MANAGEMENT

New Nortel add-ons are aimed at helping network managers manage WAN and LAN devices from one desktop and to bill-back for network services. ▸ 65

CUT THE CORD

Wireless Internet mail can be a liberating experience for traveling executives: no phone lines, no access code. But the trade-offs are cost, complexity and finding the appropriate wireless coverage area. We look at options from AT&T, Ericsson and Metricom. ▸ 68

FLASHBACK: USERS, UNITE!

It didn't take long for the first IBM computer users to find each other. In 1955, Share became the first users' group. ▸ 68

VPN COMEBACK?

Internet-based virtual private networks stalled last year, but more solid standards, better security and an attractive price may kick-start them in '99. ▸ 65

CAROLINA GREEN

There's a lot more to North Carolina than tobacco and NASCAR. The Raleigh-Durham area, Winston-Salem and Charlotte have plenty of IT work, and employers in those areas are racheting up their pay scales. ▸ 82

QUICKSTUDY: A LOOK AT MPP

Divide and conquer: That's the idea behind massively parallel processing (MPP), which breaks up computing tasks among hundreds or even thousands of processors. We explain the various flavors of MPP and show how an MPP system handles a typical business query. ▸ 70

MORE

Hardware 64
Networks 65
Software 62

CHUCK KENSICKI, director of business management systems at the California State University ...s Office, opted for a data mart strategy to tackle year 2000

Y2K: WHAT TO DO IF YOU'RE BEHIND

IT'S NOT QUITE TIME to kiss your you-know-what goodbye, but it is time for aggressive year 2000 triage. Consultants and users alike say you need to identify your most critical systems and fix them as quickly as possible, letting everything else slide. There are some other emergency shortcuts you can try — but they're long shots.

76

BRIEFS

Building on ERP

How do you plan to extend your enterprise resource planning system?

- **70%** Give users access to real-time data
- **64%** Integrate with E-commerce systems
- **56%** Link to systems at suppliers
- **44%** Link to systems at customers
- **44%** Integrate with decision-support systems

Base: 270 senior IT executives surveyed via interviews, discussion groups and an online questionnaire. Research was partly funded by PeopleSoft Inc. and Sun Microsystems Inc.

R/3-D&B Links

SAP AG last week announced a pair of interfaces that let users of its R/3 enterprise resource planning package access The Dun & Bradstreet Corp.'s database of credit and purchasing information. The jointly written interfaces are due for general release next month.

The links cost $32,600 each and support accounts payable and accounts receivable applications.

www.sap.com

CyberCop Scanner Now Runs on Linux

Network Associates Inc. has announced a version of its CyberCop Scanner for the Linux operating system. The product is a component of Net Tools Secure, which the Santa Clara, Calif., vendor sells for $56 per node for 5,000 users.

www.nai.com

Interleaf Updates Publishing Suite

Interleaf Inc. has announced Interleaf 7, the latest version of its electronic-content publishing tool. Interleaf 7 supports more formats than previous versions, according to the Waltham, Mass., company.

Pricing starts at $1,395; the upgrade is free for existing customers.

www.interleaf.com

2 MICROSOFT UPGRADES TARGET THE ENTERPRISE

Scalability of SQL Server 7.0 for ERP apps questioned

BY STEWART DECK

RECENT announcements that enterprise resource planning (ERP) software packages like SAP AG's R/3 now can run on SQL Server 7.0 indicate ERP vendors believe the Microsoft Corp. database is solid enough to handle heavy data loads.

Some early adopters also have shown faith in the database. But analysts said the limits of the underlying operating system, Windows NT, will restrict SQL Server 7.0 to ERP installations involving no more than 1,000 users.

Pennzoil-Quaker State Co. in Houston is one of the handful of companies that have worked with Microsoft to build an SAP R/3 ERP system on SQL Server 7.0. Pennzoil CIO Britt Mayo said the system has been "stable and reliable" and added that users have seen "substantial" improvements in query response time.

Eye Care Centers of America Inc., the third-largest optical retailer in the U.S., has found that the database and Windows NT suit its needs well. Eye Care runs a financial accounting application from Great Plains Software Inc. on top of the Microsoft database.

Tony Moos, director of corporate systems at San Antonio-based Eye Care, said SQL Server 7.0 will take care of "any future plans that we can foresee. Even if we doubled our system requirements today, we'd be well within its limits."

Al Hilwa, an analyst at Gartner Group Inc. in Stamford, Conn., said SQL 7.0 can handle up to 500 concurrent users, which would be similar to an SAP 1,000-user system, which no more than 500 people would probably use at once.

"Microsoft has done a good job scaling SQL Server for a well-designed application like SAP," Hilwa said, but it can't reach the 2,000-user limit of a Unix-based system running an Oracle database.

> Even if we doubled our system requirements ... we'd still be well within [SQL Server's] limits.
>
> TONY MOOS, EYE CARE CENTERS OF AMERICA

Richard Finkelstein, a Chicago-based analyst at Performance Computing Inc., said a midsize system is fine for the database, but the NT operating system it runs on is the drawback.

NT was "designed to make money from desktops, not to run mission-critical applications," he said. "Unless companies are willing to cut back on the kind of business they want to do, they'd better stay away from it. Microsoft can't scale NT to compete with Unix and at the same time support the desktop. It's like IBM trying to make a desktop version of MVS — it just doesn't work."

DATABASE	USACE LIMIT
SQL Server 7.0	500 concurrent users
ERP systems running on Oracle8	1,800 concurrent users
IBM's DB2 running on a mainframe	5,000 concurrent users

SOURCES: INTERVIEWS WITH ANALYSTS

SMS 2.0 goal is to improve inventory, apps distribution

BY SHARON GAUDIN

CORPORATE USERS are betting that Microsoft Corp.'s new version of its Systems Management Server will make it easier to distribute software and inventory their systems.

SMS 2.0, which is shipping now, was designed to improve on both Version 1.2's software distribution capabilities and its software and hardware inventory performance.

SMS, a part of Microsoft's BackOffice suite, is used to manage Windows-based software and related hardware — distributing software, taking inventory, metering and performing automated audits.

"There have been some limitations with [Version] 1.2," said John Scannello, director of information technology planning at Consolidated Edison Company of New York Inc. "It just didn't drill down deep enough in terms of inventory ... and it wasn't granular enough for distribution. This version should solve some of those problems for us."

A Microsoft spokesman said Version 2.0 gives IT administrators the ability to fine-tune software distribution to individual users, groups of users or TCP/IP network segments instead of only to a machine or domain.

And the spokesman said IT departments that use Version 2.0 can choose if users must accept the software immediately, if they have a spao of time to accept it or if they can choose not to accept it at all.

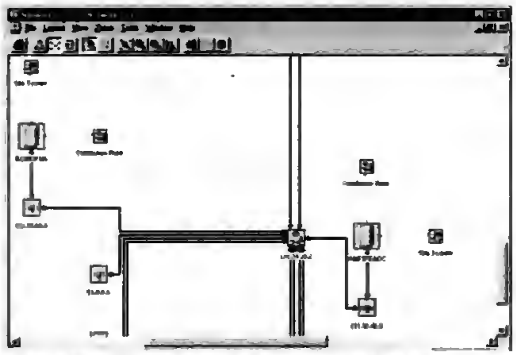
"We really need it to help us roll out software," said Scannello, who added that he plans to move his 8,000 client licenses from Version 1.2 to Version 2.0 during the next few months.

"Last year, we did 500,000 independent updates. For the most part, before SMS, things just didn't get done. If you went to somebody's workstation, you'd find a version a few years old," he said.

Patrick Dryden, an analyst at Giga Information Group Inc. in Austin, Texas, said users should see a marked improvement in Version 2.0.

"[Version] 1.2 had a bad rep," Dryden said. "An administrator had to know SQL Server, because that was the repository. And the software distribution was awkward to use, requiring a lot of granular attention."

Drydeo said Microsoft is catching up with vendors such as Network Associates Inc. in Santa Clara, Calif., and Platinum Technology Inc. in Oakbrook Terrace, Ill., which have long made distribution and inventory easier to manage, giving IT more control.



SMS 2.0 GIVES IT administrators the ability to fine-tune software distribution to individual users, groups of users or TCP/IP network segments instead of only to a machine or domain

Data Warehouse Project Starts Simply

Lexis-Nexis avoids complexity quagmire

BY STEWART DECK

Lexis-Nexis was determined not to fall into the swamp that a data warehouse project can become.

The Dayton, Ohio-based provider of legal and news documents wanted to know more about its L7 million subscribers. But the company's information technology staff knew what a quagmire a warehouse could turn into, as different parts of the business argued over data definitions and the complex jobs of scrubbing and importing data.

So the company started the project with simple goals and had the first working pieces in place in three months.

"Our subscribers will grow geometrically with Web-based access," explained Keith Hawk, vice president of sales for the Nexis divisioo of Lexis-Nexis (itself a division of Reed Elsevier Inc.). "And therefore our business model is changing from selling primarily into organizations to selling to individual users."

To track those new customers, Lexis-Nexis needed to replace its decision-support system — a thicket of legacy systems and an old IBM DB2 database — with new tools and a data warehouse that will let 475 salespeople and in-house analysts look up daily detailed customer usage data.

Heavy Machinery

At the core of this oew system — which will be fully io place by June — is an NCR Corp. Teradata parallel database running on a two-node, NCR WorldMark 4700 server with 364G bytes of storage.

"We are taking our reporting system and building it as a customer-ceotric warehouse for analyzing customer information so that we can better understand and predict customers' needs," said Pam Dunsky, vice president of information systems at Lexis-Nexis.

"This gives us a scalable platform with better delineation between our operational and analytical environments and gives us a good place to start," Dunsky said.

The type of data the company's salespeople will be sorting through will include subscriber usage patterns — what they look up, what sources they use most often, when they're connecting — along with customer contract details.

To get to that data, Lexis-Nexis chose decision-support tools from MicroStrategy Inc.

Field sales representatives who oeed ad hoc reporting capabilities will use MicroStrategy DSS WebPE and WebSE, while power users will use DSS Agent to closely analyze and model business processes.

Mitch Kramer, an analyst at Patricia Seybold Group in Boston, said data warehouses such as Lexis-Nexis' benefit organizations by consolidating customer informatioo in a single place where it can be combed through for pattern analysis.

LEXIS NEXIS PAM DUNSKY took a m approach to build ng a data wareho se

Ian Reid

BLUESTONE TO SHIP XML SERVER, TOOL KIT

Vendor hopes to make data-tagging language easier to use

BY CAROL SLIWA

WITH USE of the Extensible Markup Language (XML) expected to skyrocket this year, Bluestone Software Inc. has shipped one of the first standalone XML servers that make it easier for information technology managers to exchange data with other companies.

Bluestone's new $2,995 XML Server shipped earlier this month.

The Mount Laurel, N.J., software maker also plans to release in April its $99 Visual-XML tool kit that will help companies write Java applications that can extract data from databases or applications while the application is running — as opposed to requiring that the data be stored first in XML.

XML helps companies categorize data in a structured way, making the information easier to search, analyze and transfer. For example, one company might want to tag brand and price information to send into another company's order-entry system without the need for cumbersome and expensive electronic data interchange (EDI) systems.

An XML Server, such as Bluestone's new offering or WebMethods Inc.'s B2B, can help convert data into the format that the back-end system needs and deliver it to a more efficient manner than HTML-, paper- or EDI-based systems.

Zona Research Inc. in Redwood City, Calif., predicts that XML usage will explode this year. Products that support XML have been slowly emerging in the market.

XML is expected to prove useful to customers such as Automotive Resources International (ARI), also in Mount Laurel, which leases fleets of cars and trucks. If a customer wants to know the vehicle numbers and mileage on trucks it is leasing, and at another time also wants to know the trucks' locations, that data can be added relatively easily using XML.

"It reduces programming cost," said Richard Hays, an ARI database administrator. Right now, the company communicates with customers via paper, and to a lesser degree, EDI, he said.

Because Bluestone's XML server and tool kit are written in Java, they will run on any platform, including Windows NT, major Unix platforms, Linux and IBM's AS/400 and mainframes, company officials said.

An XML server, such as Bluestone's stand-alone offering, can be a cheaper alternative to expensive applicatioo servers that support XML, said Martin Marshall, an analyst at Zona Research.

Bluestone's dynamic middleware-oriented approach contrasts with the repository-based strategy of companies such as Object Design Inc., whose Exceloo data server caches and manages data that already has been translated into XML.

"We don't really want to get in the business of telling Oracle customers how to convert their data," said Coco Jaenicke, an Object Design product marketing manager.

Commerce XML Standards Effort Set

More than 40 vendor and user companies last week announced plans to finalize the Commerce Extensible Markup Language (CXML), a subset of XML that will define standard sets of data for Internet-based electronic commerce.

A simpler, more lightweight version of electronic data interchange, CXML's data tags and first production prototype will be released for public review on March 3 and sent to a standards body within six months, said Paul Touw, vice president of corporate strategies at Ariba Inc., the Sunnyvale, Calif.-based software vendor that's leading the CXML movement.

Several companies plan to release products that conform to CXML.

– Carol Sliwa

MOREONLINE

For resources, an FAQ, articles, specifications and organizations related to XML, visit our Web site

www.computerworld.com/more

BRIEFS

A Deeper Shade Of Blue

IBM has announced an RS/6000 SP system based on its 64-bit Power3 microprocessor. According to IBM, the chip delivers double the number-crunching capabilities of its predecessor – the Power2 chip that powered Deep Blue, the chess-playing supercomputer that beat world champion Garry Kasparov in 1997.
www.ibm.com

Storage Network Switch

Vixel Corp. has released the Vixel 8100, an eight-port Fibre Channel switch for storage networks. According to the Bothell, Wash., company, the switch delivers 200M bit/sec., full-duplex speed from any port to any other port. Configuration and monitoring software also is included.

The 8100 is set to ship in April for $8,495.
www.vixel.com

Fujitsu Notebook

Fujitsu PC Corp. has announced LifeBook E370, a notebook with dual multifunction bays, which let users hot-swap devices and batteries. According to the Milpitas, Calif., company, the product includes a 366-MHz Pentium II processor from Intel Corp., 64M bytes of RAM, a 56K bit/sec. modem and a 13.3-in. display.

It comes with a 6.4G-byte hard drive and a removable Zip drive from Iomega Corp.

LifeBook E370 costs $3,099.
www.fujitsupc.com

DG Ships New Aviion Server

Data General Corp. is now shipping the Aviion AV 3704R, a rack-mount server designed for high availability. The server can include up to four 450-MHz Pentium II Xeon processors from Intel Corp. and 4G bytes of memory. According to the Westboro, Mass., company, up to nine of the quad-processor systems can be stacked in a single cabinet.

Pricing starts at $7,500.
www.dg.com

CAPACITY PLANNING MORE VITAL THAN EVER

Flood of data prods FedEx, other companies to improve estimates

BY JAIKUMAR VIJAYAN

THE GROWING popularity of online commerce and enterprise resource planning applications are putting greater pressure than ever on information technology organizations to accurately estimate system needs.

The tendency of these applications to quickly saturate server and network resources could mire companies in an endless cycle of upgrades and migrations if proper capacity planning isn't undertaken, users and analysts warned.

Server and network capacity planning gives users a way to predict the resources needed to run a particular application optimally and how much headroom is needed for growth.

When done right, it gives administrators a way to answer capacity questions relating to disks, memory, PCs and the network.

Without it, performance slowdowns caused by overtaxed systems could end up hurting companies big-time, said Steve McKown, director of information technology at specialty tea maker Celestial Seasonings Inc. in Denver.

The company is trying to move some of its catalog business to the Web. It uses capacity planning tools to figure out how many online transactions its server and networks can handle without performance degradation.

"The lead time to enhance your infrastructure from a capacity standpoint could take weeks," McKown said. In the meantime, "there is just too much business opportunity you stand to lose" because of poor advance planning, he added.

Online stock traders offer another example of the need for adequate capacity. The recent spikes in online traffic — and their impact on service quality — resulted in end-user complaints to the Securities and Exchange Commission rising 330% from September 1997 to September 1998. As a result, online trading firms are busy ramping up capacity [CW, Feb. 8].

When You Need It

Shipping giant Federal Express also has seen growth that required capacity planning. "Capacity planning is a pretty big deal for us now because of the amount of data we have to handle," said Ann Glisan, manager of systems development at parent company FDX Corp.'s Federal Express data center in Colorado Springs, Colo.

At Celestial Seasonings, planners first test a small version of the application and use predictive tools to see whether its systems can handle the workload of a new application, McKown said.

Some tools for this kind of capacity planning — such as consistently tracking CPU utilization — are available at the operating system level itself.

More predictive technologies and configuration services are available from several vendors, including system makers such as Hewlett-Packard Co. and IBM; and tool vendors such as Bluecurve Inc. in Oakland, Calif., Landmark Systems Corp. in Vienna, Va., and Candle Corp. in Santa Monica, Calif.

At FedEx, such tools help the company handle the vast storage requirements demanded by some of its applications, Glisan said.

For example, one application requires the company to store data on disk drives for 18 months before rolling it to offline jukeboxes. That volume has steadily increased as FedEx's shipping volumes have risen.

Capacity tools let planners decide whether storage systems need to be upgraded during those 18 months, Glisan said. ▶

Plan, Plan, Plan

Why you may need capacity planning:

- It reduces the constant need for upgrades
- It lets you better use idle capacity
- It allows better managemeot of hardware

StorageTek Ships Tape Drive For Doing High-End Backup

Runs on mainframe, Unix, NT platforms

BY NANCY DILLON

Though about six months late, Storage Technology Corp. has begun to ship its next-generation tape drive, the 9840.

The new, 20G-byte drive is targeted at demanding backup environments and near-online applications such as imaging, document archiving and video. Its primary competition is IBM's Magstar line.

In 1997, the Cleveland Clinic replaced a large cache of offline optical storage with a tape archive based on StorageTek's Redwood tape. The clinic now is migrating that 5T-byte archive to the faster 9840 technology, which offers a 10M byte/sec. data rate and tape midpoint loading.

"Our current access time [with Redwood] is 100 seconds per request," said Robert Cecil, network director for the clinic's Department of Radiology. "We expect this to drop to 20 seconds with the 9840."

The 9840 works with mainframe, Unix and NT platforms. With maximum compression, each 9840 tape can hold 80G bytes. But the drive's biggest drawback is its incompatibility with existing standard media such as 3490 tapes. Pricing starts at $27,000 per drive. ▶

3COM BIGPICTURE PHONE

3COM CORP.'S Bigpicture Video Phone includes client-based software for point-to-point videoconferencing, multipoint chat and interactive cybercasting, according to the Santa Clara, Calif., vendor.

It also comes bundled with Microsoft Corp.'s NetMeeting 2.1 videoconferencing software for point-to-point video calls and application sharing. The phone costs $150.95.
www.3com.com

Bay Management Tools Cover WANs, Billing

Charge-back helps IT managers account for equipment and network use

BY BOB WALLACE

LAN vendor Bay Networks Inc. last week broadened its network management capabilities with add-ons for managing wide-area network equipment from pareot company Nortel Inc. in Toronto and for collecting network data for bill-back purposes.

The first add-on, Open Management Systems 3.1 for Passport (OMS 3.1), lets network managers configure, monitor and manage WAN devices — along with LAN equipment — from one desktop.

The second add-on, Optivity Service Accounting 1.0 (OSA), helps them charge for network usage.

OMS 3.1 is the first major step toward enabling network managers to control Bay Networks' equipment such as switches and routers as well as Nortel's Passport line of WAN switching equipment.

One analyst predicted that OSA will be a big hit with information technology departments.

"The ability to charge back for use across the LAN and the WAN is definitely important because of drivers like electronic commerce," said Elizabeth Rainge, an analyst at International Data Corp. in Framingham, Mass. "IT managers need to be able to account for network usage."

Bay Networks is "leading the pack" with the announcement and its aggressive approach to expanding network management beyond just managing boxes, said Chris Nicoll, an analyst at Current Analysis in Sterling, Va.

OMS 3.1 aod OSA will ship next mooth for $12,000 aod $30,000, respectively ▶

MOREONLINE

For links to network management resources, visit our Web site www.computerworld.com/more

PRICE, STANDARDS COULD BOOST VIRTUAL NET USE

Private-net alternatives didn't live up to hype in '98

BY BOB WALLACE

ALTHOUGH Internet virtual private networks (VPN) failed to live up to the hype last year, users and analysts predict steady growth for the private company network alternatives.

An Internet VPN is a oetwork that carries data packets — typically but not always encrypted — through virtual tunnels across the Internet. VPNs have been pitched as a far less-expensive alternative to dedicated private-line networks. But product immaturity, an absence of technical standards and a dearth of education have hamstrung their deployment.

VPN products in general have been immature on scalability, functionality and robustness, according to Dan Merriman, an analyst at Giga Information Group Inc. in Cambridge, Mass. For example, some VPN hardware doesn't support enough remote users and doesn't include routing and firewall functionality in a single box. That forces users to cobble together multiple devices at each site, which in turn complicates management.

Such shortcomings have caused concern, Merriman said, because "we're dealing with business-critical applications with important security and performance implications."

> If security is adequate on the public Internet, you have to reassess why you're staying with a private net.
>
> ED LEARD, IS REGIONAL MANAGER, YAMAHA CORPORATION OF AMERICA

Although last year was clearly a stumble, several developments could make this year a better one for VPNs. For one thing, deployment could accelerate if service providers and equipment vendors pitch in.

"Vendors and service providers have a huge amount of work to do this year educating users on VPNs," said Eric Zines, VPN analyst at TeleChoice Inc. in Boston. "We're finding that 60% to 70% of IT managers say they don't know anywhere near enough about [VPN] products and technologies."

"By the end of last year, we finally had [draft] standards for security and encryption that vendors could build to, whicb means I can choose to buy equipment from any or from multiple vendors," said Jim Fey, director of strategic technologies at PMI Mortgage Co. in San Francisco. Key VPN standards oo tap are IPSec, a specification for security, and Ioternet Key Exchange, a specification covering encryption. Both are being advanced within the Internet Engineering Task Force (IETF).

On the pricing front, users stand to save big by replacing their private networks with VPNs, according to experts.

"VPNs are typically 50% to 70% cheaper than private lines, 20% to 60% cheaper than frame relay and over 90% cheaper than international private lines," Zines said.

One manager said security for Internet VPNs has come a long way in a short time, thanks in part to the IETF specifications. "Security isn't bulletproof, but it's pretty safe now," said Ed Leard, information systems general manager at Yamaha Corporation of America in Buena Park, Calif. "If security is adequate on the public Internet, you have to reassess why you're staying with a private net."

Users looking to cut communication costs should take a look at Internet VPNs but should be mindful that costs are likely to come down as service providers look to sell more of their network bandwidth. And before pushing lifeblood application data over the Internet, they should push their provider to sign service-level agreements covering performance. ▶

SNAPSHOT

Wide-Open WANs

Sales projections of WAN-based voice/data equipment and services

SOURCE: INFONETICS RESEARCH INC., SAN JOSE, CALIF.

BRIEFS

Xylan Adds Switches

Xylan Corp. last week announced OmniStack 4024, a family of four small 10M/100M bit/sec. switches that support policy-based management, security and, with three of the models, Gigabit Ethernet uplinks. All four can bond four Fast Ethernet ports together to form a 100M bit/sec. megapipe, according to the Calabasas, Calif., vendor. Pricing starts at $3,450.

www.xylan.com

Win Security Tool

WebTrends Corp. has released WebTrends Security Analyzer, software that checks services, programs and permissions on Windows NT, 95 and 98 and TCP/IP systems, including E-mail servers and clients, Web servers, Web browsers and FTP servers. It also offers regularly scheduled reports and recommends fixes, according to the Portland, Ore., company. Pricing ranges from $1,499 to $4,999.

www.webtrends.com

VPN Tool Upgrade

Data Fellows is set to ship F-Secure VPN+ 4.0, a new version of its virtual private networking software, this month. The Windows-based tool adds support for dial-up and Dynamic Host Configuration Protocol addressing with Windows 95 and NT 4.0. Security settings are centrally managed and status information is accessible with a Web browser, according to the San Jose, Calif., company. Pricing ranges from $59 per user for a 100-user license to $4,990 for an enterprise gateway.

www.datafellows.com

File Sync Software

Software Pursuits Inc. has announced SureSync Server 2.1, software for replication, synchronization and mirroring files between servers over a LAN or WAN. The new version includes the ability to automate ongoing synchronizations and run synchronizations at remote servers, according to the San Mateo, Calif., company. The software costs $500 per Windows server.

www.softwarepursuits.com

Kelly Fights E-Mail Bugs at the Server

BY ROBERTA FUSARO

Troy, Mich.-based employment agency Kelly Services Inc. is using server-based filtering technology to crush E-mail bugs — and has found some early success.

Kelly has about 5,000 employees. About 60% of the company uses Lotus Notes; about 40% uses Internet mail.

When Kelly adopted Lotus Notes, many users gained their first access to external E-mail. As the system was rolled out, the number of E-mail messages grew exponentially, "which gave us greater exposure to newer strains of viruses," said Mike Littleton, a network systems engineer and leader of Kelly Services' antivirus project — a team dedicated to tracking E-mail bugs. Kelly now transmits 500,000 to 1 million messages per month globally, he said.

Late in 1997, the company noticed it had contracted "Imposter E," a Word macro virus, and tried to fight it off desktop-by-desktop. But by July of last year, the number of alerts had increased significantly.

So Kelly adopted Trend Micro Inc.'s server-based ScanMail product. With ScanMail, desktops could be monitored from a central location and software/virus pattern updates could be done automatically. Visits to each desktop weren't necessary, support analyst Dave Pflieger said.

Kelly deployed ScanMail in the fall and had fewer virus alerts in the fourth quarter of 1998 than ever before, officials said.

Kelly considered products from Network Associates Inc. and Symantec Corp. but chose ScanMail for Lotus Notes because it fit best with the company's Notes infrastructure, said Dale Valitutti, Kelly's Notes administrator.

The server-based model lets administrators track alerts back to an individual user so they can isolate virus hot spots, Littleton said. And because Kelly can configure every workstation in one shot, that guarantees antivirus consistency, he said.

Oppenheimer Security Funds in New York is using WorldTalk Inc.'s WorldSecure Server to protect its messaging system. And Procter & Gamble Co. is using Tally Systems Inc.'s MailCheck, a probe-based E-mail management system.

That's because the threat of virus infection through E-mail is greater today than ever before, users and analysts said.

The way to defend is to deal with the points where E-mail enters the network, said Joe Judge, a consultant at PriceWaterhouseCoopers in Boston. That means applying controls at firewalls, gateways, mail stores and file and Web servers, he said.

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For links to E-mail virus resources, visit our Web site.

www.computerworld.com/more

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BRIEFS

Fujitsu, Toshiba Team on Fast DRAM

Fujitsu Ltd. and Toshiba Corp. last week said they will jointly develop memory chips that could operate two to three times faster than today's dynamic RAM chips, which are used as the main memory in PCs. The Tokyo-based companies plan to ship samples of 64M-, 128M- and 256M-bit Fast Cycle RAM chips later this year.

SmartDB Templates For PeopleSoft Apps

SmartDB Corp. in Palo Alto, Calif., last week released a set of application integration templates that support PeopleSoft Inc.'s financial and human resources software.

The templates work with SmartDB's Workbench 4.1 data transformation engine. Pricing starts at $47,500.
www.smartdb.com

Motive Revamps Duet

Austin, Texas-based Motive Communications Inc. is shipping a new version of Motive Duet, its support management software aimed at helping end users solve their own computer problems.

Available now, the Motive Duet Self-Service Engine starts at $75,000.
www.motive.com

Doc Manager For Exchange

Eastman Software Inc. in Billerica, Mass., is now shipping Version 1.1 of its Document Manager for Microsoft Exchange. The product includes enhanced version control, document locking and audit trails.

It costs $149 for new users; a free license upgrade is available to users of Version 1.0.
www.eastmansoftware.com

Windows Apps For Manufacturing

Danish vendor Navision Software U.S. Inc. has released Windows-based manufacturing applications aimed at midsize users. Navision Manufacturing is integrated with a set of financial applications sold by the company, which has U.S. headquarters in Norcross, Ga.

Pricing starts at $35,000.
www.navision.com

Messaging Tool Bows

Software Technologies Corp., a Monrovia, Calif., developer of application integration tools, last week announced software that combines publish-and-subscribe messaging and multicasting capabilities. DataCast is aimed at uses such as feeding stock-price data to large groups of traders at once, the firm said.

Pricing ranges from $50,000 to $125,000.
www.stc.com

Sybase Scanner

Internet Security Systems Inc. has announced Database Scanner 2.0 for Sybase Inc.'s Adaptive Server Enterprise. It costs $995 per database server. *www.iss.net*

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Hold the Phone (Line)

BY DAVID STROM

WIRELESS INTERNET MAIL can be a liberating experience for traveling executives. No need to plug in to a phone line. No need to mess around with your hotel's phone system. And no need to worry that you don't have the right access code, phone number or the time to search for a convenient RJ-11 phone jack when you're at an airport or on the road. But the trade-offs are cost, complexity and finding the appropriate wireless coverage area.

Of the three trade-offs, understanding the radio coverage areas and networks in place around the country is the most vexing.

Some systems don't work in every city: For example, Metricom Inc.'s service is available in three metropolitan areas, while AT&T Corp.'s isn't available in Los Angeles.

Others don't cover the far-flung suburbs yet.

Most of the major service providers have maps describing coverage on their Web sites, but actual performance can vary tremendously depending on geography, obstacles such as concrete walls and metal floors, and your own particular elevation at the time of use.

Wireless E-mail can cost at least double that of the wired version, to be sure. There is a dizzying array of plans and service options; some of which require lots of scrutiny and clarification.

Some plans charge by the minute, others by the number of characters transmitted. Still others offer unlimited pricing plans.

Wireless also is more complex than wired: You'll need to have several different pieces of hardware and software, such as a wireless modem or cell phone with a modem attachment, a cable that connects your computer to the modem and the necessary software and configuration parameters to make it all work.

Because of its complexity, you should test it in your office carefully before hitting the road.

You'll also need a standard Post Office Protocol (POP) Internet E-mail account to use these products.

If you currently get your corporate E-mail through Lotus Development Corp. Notes or Microsoft Corp. Exchange servers, they won't work.

I tried two phone-based systems for providing wireless, Internet-based E-mail.

The phones have the advantage of being portable and relatively easy to use — and they can do double duty, taking wireless voice calls as well as data.

There are other wireless systems, including the newly announced (but not yet available) Palm VII from 3Com Corp., but the ones I reviewed are the only three available for a wide variety of computers, personal digital assistants and laptops that work across most of the country.

Strom is a freelance reviewer in Port Washington, N.Y.

MORE ONLINE

For more wireless Internet mail buying tips, visit our Web site.
www.computerworld.com/more

AT&T Wireless Services

AT&T PocketNet Service
Samsung Duette Phone ($99)

Unwired Planet Browser and Infinite Technologies Mail and News.com mail reader
Typical monthly price: $30, plus voice calls billed separately
www.attws.com/general/pocketnet

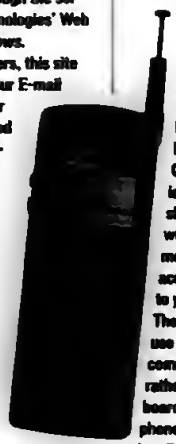
It looks like a cellular phone with a large, four-line display, but it actually has its own TCP/IP address and Web browser built in. I found this phone to be indispensable over the past year; I have managed to read our E-mail without having to carry a laptop around the country. The service is called AT&T PocketNet. AT&T Wireless Services sells the voice and data services, and you can buy one of two different cell phones that will work with the whole shebang. I have tried both the Samsung Duette and Mitsubishi Mobile Access phones, and prefer the former for its ease of use and four-line screen readability.

The phone connects to my standard POP E-mail account at www.strom.com through the services of Infinite Technologies' Web site (www.mailandnews.com). Like many others, this site allows you to read your E-mail within a Web browser and has been designed to work with the PocketNet phone. It took minutes to get it set up and working, and the instructions are very clear.

The bad news is that the service isn't available in Los Angeles or Atlanta. Also, AT&T's pricing plan is complex in that you pay separately for voice and data calls. If you want to connect your phone to your laptop, there are additional fees and pricing plans to choose from.

Metricom Inc.

Ricochet service ($30 per month unlimited Internet access plus initial $45 fee)
Metricom modem: $349
www.metricom.com



If you live in or frequently travel to Seattle, San Francisco or Washington, you have a third choice for wireless Internet E-mail access. Called Ricochet, the service is as close to a one-stop shopping experience as you will find. You get a wireless modem from Metricom and an account. The modem attaches to your computer's serial port. The advantage is that you can use your existing PC or laptop to compose and receive E-mail, rather than using the puny keyboards of the Samsung cell phone or a Windows CE-based handheld device. And you pay a single price for all the access you need, rather than trying to decode some complex billing plan – which is what's offered by most cellular phone vendors. But outside of those three areas, you have to make do with a traditional wired connection.

Ericsson Co.

Ericsson CF768 Cellular Phone (purchase price varies, depending on service provider)

Ericsson DI27 Mobile Office Software and Infrared modem ($279)
Omnipoint Wireless Service (typical manthly service fee: $45)
http://mobile.ericsson.com

Another wireless option is to use cellular phones with modems. This hasn't been easy over the years because each phone requires a special, expensive cable to connect it to a laptop. Also, the number of prices, plans and products is numerous. Ericsson has tried to solve this problem with a special infrared modem about the size of a "C" battery, which snaps on to the end of many of its digital phones. The infrared modem doesn't need any cable to talk to a computer with a corresponding infrared port, such as those found on many laptops and Windows CE-based machines.

Of course, cellular phone services charge by the minute for calls. That could add up quickly – particularly if you roam outside your local area.

One solution is to use a digital carrier that doesn't charge for roaming, such as Omnipoint Corp. Getting the phone, modem and computer set up took about an hour, including reading some confusing instructions in the various manuals.

This setup – unlike the AT&T phones – has the advantage of having an almost full-size QWERTY keyboard to compose messages.

Technology Happenings

Grace Hopper develops Math-Matic, the A-3 compiler.

IBM opens its **first data center** so customers can test programs before their machines are delivered.

Ralph Cordiner, president of **General Electric Co.**, gives a speech for a congressional committee, saying, "The computer-derived technologies will create new industries and new products that will be a major source of new employment in the coming years."

Sperry Gyroscope merges with **Remington Rand Corp.** to become Sperry Rand Corp.

NASA and the U.S. military begin to fund major computer research projects.

IBM delivers the first **IBM 704**, designed by Gene Amdahl.

Computer Usage Co., the first computer software company, is founded by **John W. Sheldon** and **Elmer C. Kubie.**

The first artificial intelligence program language, **Information Processing Language**, is created by **John Clifford Shaw, Allen Newell** and **Herbert A. Simon.**

Sperry Rand introduces **Univac II**, with magnetic core memory.

IBM introduces the **IBM 705**, with magnetic core memory.

Born in 1955

Tim Berners-Lee

Steve Jobs

◀ **William Henry Gates III**

William Nye —Bill Nye, the Science Guy

Guy Lewis Steele Jr. — computer hacker and author

Other notables

Ford Thunderbird costs $2,695

Minimum wage is raised to $1

Best Picture: *Marty*

Admission to Disneyland costs $1

Weekday price of *The New York Times* is 5 cents

Loaf of bread costs 17 cents

McDonald's hamburger costs 15 cents

The Users Unite

BY MARY BRANDEL

IT DIDN'T take long for the first IBM users to find one another. When there are only 17 of you, with seven in Southern California alone, you're bound to meet. Just two years after the release of IBM's first computer, the 701, those companies formed Share, the first user group in computing history.

Share held its first meeting on Aug. 15, 1955, at Rand Corp., a think tank in Santa Monica, Calif. Its main purpose was to stop reinventing the wheel — at the time, all the 701 users were writing their own utilities and programs. With the impending release of the 704, they faced the giant task of rewriting or porting all those programs to a new machine. So from the very first meeting, the group began to share programming knowledge.

Computerworld spoke with three original members: Frank Wagner, who at the time was group leader for engineering computing at North American Aviation Inc.; Paul Armer, who headed the computer science department at Rand; and Morton Bernstein, an associate mathematician at Rand. Here's what they had to say about Share's early days:

Share's Formation

ARMER: There was an IBM salesman in Santa Monica named Blair Smith. He said, "I've got all these [701 customers] all trying to do the same thing — you guys need to get together to talk about it."

There came into being the Digital Computing Association, also known at the time as the Drunkard's Computing Association because it was a very social group. Then, when the 704 was coming out, there was this meeting at which the idea of forming Share came about.

WAGNER: An IBM speaker came out to give us a preview of the 704. In Los Angeles, we all knew each other well. We were deploring the fact that all of us were doing a lot of work that was identical. At lunchtime, we said, 'Let's call all the people we know around the country and see if they're willing to form an organization.' So we went into a phone booth and started calling.

1955

First Meeting

WAGNER: The first thing we decided was that we had to set some standards. If we were all going to use the same programs, we all needed to have the same computer configurations. There were probably 10 to 15 standards we discussed, such as utility programs and mathematical functions.

We committed to distribute any programs that would be of value to others. And a lot of ethics were involved. You were not supposed to recruit people from other organizations at a Share meeting. And if you were in the business of selling programs or hardware, you were forbidden to do this at a meeting except at the invitation of Share.

The Mix of Work and Fun

BERNSTEIN: One of the delightful inventions of Share was SCIDs, or Sessions on Common Information Discussion. We managed to arrange for a suite where people could get together after the day's meetings and let their hair down. Companies like Rand were not permitted to spend money on alcoholic beverages. It became an instant tradition. There was always a card game in the corner, but a great deal of information exchange went on.

The Share Grapevine

ARMER: I walked into my office around 9 one morning, and the phone was ringing. It was someone from Share on the East Coast saying, "I understand you had a fire on your computer." The news had gone from our installation, to another 704 installation, to the East Coast and now back to me, all by the time I got into work. That says something about how much we were in contact with one another.

Share's Influence

WAGNER: We had dozens of committees on various technical matters. These were very influential in directing IBM as to how they should behave in the technical world. We had a tremendous influence on the use of Fortran. It turned out that 90% of the engineering [and] scientific programs were written in Fortran. Without Share's backing, that wouldn't have happened.

BERNSTEIN: Share turned out to be, by accident or design, the first standards-setting organization in the [industry].

The IBM/Share Relationship

BERNSTEIN: For a customer that had never owned a computer before, IBM could say, You can join Share, with literally hundreds of experts and get all the support you need. It turned out to be best marketing tool that anyone could have invented. ■

Brandel is a frequent contributor to Computerworld. *Her E-mail address is brandel@cwix.com.*

Albert Einstein dies at age 76

Disneyland opens in Anaheim, Calif.

James Dean dies ▲ in his Porsche on Hwy. 101 in California

***The Mickey Mouse Club* debuts on TV**

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

U.S. begins training the South Vietnamese army

"Rock Around the Clock" makes *Billboard*'s No. 1 spot

Little Richard records "Tutti Frutti"

The Montgomery, Ala., bus boycott begins under the leadership of Martin Luther King Jr.

■ Flashback is produced with the assistance of the Computer Museum History Center in Mountain View, Calif.

Massively Parallel Processing

BY LAURA HUNT

If your company is looking for a high-speed, high-performance system that can execute complex analysis on huge amounts of data, then massively parallel processing (MPP) may be just the technology you need.

MPP involves placing up to thousands of processors in a single box. Each processor has its own stored memory. When a query is sent, software breaks it up so that each processor completes a different part of the problem, making the response time very fast (see chart).

The concept is simple. "Think of people trying to dig a 1,000-foot trench. If one guy can do 10 feet an hour, 10 guys could do 100, and 100 could do the whole thing in one hour," says Richard Winter, an analyst at Winter Corp. in Waltham, Mass.

Other multiprocessing systems include symmetrical multiprocessing (SMP), in which processors share the database and memory. SMP is good for large databases that are updated continually. Because the database is shared, it's easier to update, says Rich Partridge, an analyst at Port Chester, N.Y.-based D.H. Brown Associates Inc.

Another form of multiprocessing is clustering technology, in which many servers are connected together (see QuickStudy, Dec. 21).

The choice between MPP, SMP and clustering technology depends on the nature of the problem being solved. If the problem can be easily partitioned or split, MPP is a good solution, Partridge says.

Many large companies, such as Fingerhut Cos. (see Q&A), Sears, Roebuck and Co., Wal-Mart Stores Inc., Citigroup Inc., MCI WorldCom Inc., Sprint Corp. and Dayton Hudson Corp., have discovered the benefits of MPP and use it to store customer data, analyze customer behavior and segment customer categories for optimum marketing and sales activities.

Winter advises that users look at scalability requirements before implementing MPP, including how much detailed data is stored, how much of the data is used to find potential customers, how many transactions or queries are performed and how many concurrent users will be accessing the system.

"Once a database gets to a certain size, your user population suddenly gets much bigger or the level of complexity of your problem increases, only MPP can help," Winter says.

One thing to keep in mind: These powerful systems don't come without a powerful price. According to Winter, a system with just a few processors or nodes can be implemented for $400,000 or $500,000. That would typically support a warehouse with 100G bytes to 300G bytes of data. A multinode system that can support a 1T-byte warehouse would cost a few million dollars, he says. ▶

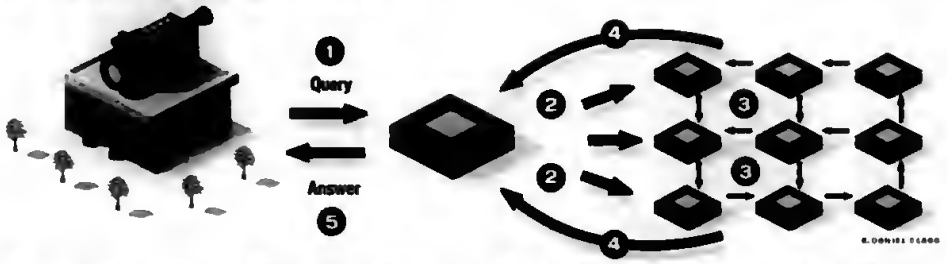
DEFINITION:

Massively parallel processing (MPP) is used to solve large computational problems. Its architecture may comprise up to thousands of processors in one system. Each processor includes its own bus, memory, disks, copy of the operating system and applications. In MPP operation, the problem or query is broken up into separate pieces, which can be processed simultaneously.

MOREONLINE

For links to massively parallel processing-related vendors, consultants, research articles and books, visit our Web site www.computerworld.com/more

An Example of How MPP Works



1. A large retailer wants to know how many camcorders were sold in 1998, and sends that query to the MPP system
2. The query goes out to a processor that acts as the coordinator and breaks up the query. For example, it could break the query up by month. This "subquery" then goes to all the processors at the same time
3. Each subquery is assigned to a specific processor in the system. In this example, the sales tracking data was broken down by month, so each processor holds one month's worth of sales information
4. The responses to the queries are returned to the coordinating processor, which adds up the monthly data
5. Final answer is returned to the user

Q&A

Randy Erdahl, group manager of marketing analysis at catalog retailer Fingerhut Cos., describes the company's MPP system called Mail Stream Optimization.

Q: *What do you use the system for?*

A: The system allows us to look at customer history and information for 20 to 40 catalogs at a time to make sure the correct customers get the appropriate mailings.

Q: *How does it work?*

A: Models are built in SAS [Institute Inc. software] based on which customers want which products and which are most profitable.

Payment history, purchase history, mailing instructions, demographics are stored and modeled, and the SAS code individually scores each customer per catalog. Orchestrate [software from Torrent Systems Inc.] optimizes the query and searches for the best answer. The system allows us to make 100 decisions in concert, instead of 100 independent decisions. We send 7 million customer records through the process every week.

Q: *How long did the project take to implement?*

A: We spent three years designing, developing and testing the system. We went live in September.

Q: *What are the benefits of the system?*

A: The application is saving money because we don't do ineffective mailings. The system also allows us to perform more complicated analysis of our customers.

Q: *Were there any surprises during the process?*

A: We were surprised to find the hardware is cheaper per processor. And we were surprised at how easy it was to implement, and the training was less expensive and easier than we anticipated. ▶

■ *Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.*

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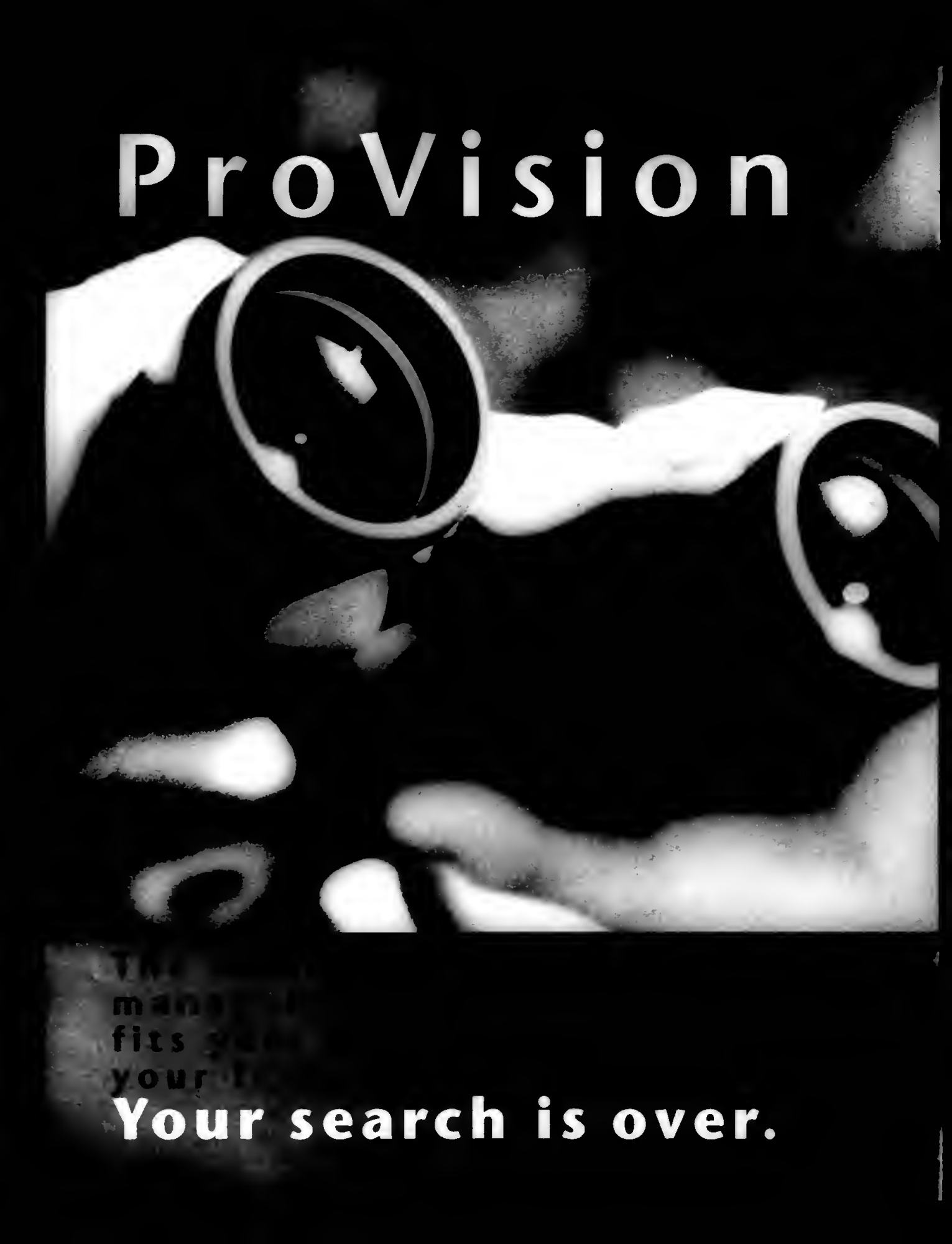
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Network Management
Proactively monitor, manage, and analyze your network and internet to identify potential bottlenecks, increase uptime, improve response times, and quickly resolve problems.

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BRIEFS

Internet 2 Advances

IBM last week announced the Internet 2 Distributed Storage Infrastructure initiative, designed to support advanced applications such as real-time broadcast and video.

The initiative, the second major piece of the next-generation Internet, is seen as vital to the Internet 2 project's goal of making collaborative research and distance learning more practical.

Profiling Legacy Data

Evoke Software Corp. is shipping Migration Architect 2.1, software that helps users profile legacy data before implementing enterprise resource planning or data warehousing projects.

The San Francisco company said the new version adds Windows NT support. The software costs $200,000 for the server and $50,000 for each concurrent user.
www.evokesoft.com

Linking Up Remote Users

WRQ Inc. has announced Reflection EnterView 2.0, Web-to-host server software that lets remote users connect to legacy applications. The Java-based tool now offers IBM 5250 emulation for IBM AS/400 hosts and Hewlett-Packard Co. 700/94 as well as 700/92 emulation for HP 3000 and 9000 hosts.

The software, which costs $135 per seat, will ship in March.
www.wrq.com

Fax for Domino

Lotus Development Corp. has announced Fax for Domino 4.0, a server-based product that lets Lotus Notes users send and receive faxes from within their Notes client.

According to the Cambridge, Mass., vendor, Version 4.0 lets mobile users send and receive faxes from the road and prioritizes outbound faxes based on predefined rules. Pricing wasn't announced.
www.lotus.com

Self-Service Platform

Edify Corp. last week announced Electronic Workforce 6, a development and runtime platform for applications that enables customer self-service. According to the Santa Clara, Calif., company, the platform now supports Microsoft Corp.'s Component Object Model and provides connectivity to existing back-office systems.

Platform pricing begins at $150,000.
www.edify.com

Who's Buying What

LEVI STRAUSS & CO. has purchased MK MANUFACTURING for its Richardson, Texas, technology center. The manufacturing resource planning software is sold by MK GROUP, which is a business unit of COMPUTER ASSOCIATES INTERNATIONAL INC.

St. Louis-based MONSANTO CO. has purchased Palo Alto, Calif.-based ACTA TECHNOLOGY INC.'s ActaWorks SAP R/3-to-data warehouse extraction tool, which the company will use to build an ORACLE CORP. data warehouse for its business divisions.

The LOUISIANA DEPARTMENT OF NATURAL RESOURCES last week said it is deploying a FILENET CORP.-based document management system to let state citizens and employees electronically review public-domain documents for oil and gas well permits, drilling, products and royalty accounts.

FRANKLY SPEAKING/FRANK HAYES

Turing's thumb

AROUND 1950, computer science pioneer Alan Turing came up with a simple rule of thumb for artificial intelligence. Turing suggested that if users held two conversations — one with a computer, the other with a human — and at the end couldn't pick out the computer more than 50% of the time, we'd have to conclude that the computer was intelligent. The now-famous Turing test wasn't based on complicated metrics or extensive statistical analysis, complex methodologies or weird psychobabble theories. It was a commonsense observation: If you can't tell the processor from the person, you might as well say the computer is as intelligent as the human being.

Forty years later, we have a different problem. We're trying to decide how well our systems meet users' needs. We've got more metrics, methodologies, statistics and psychobabble than we can use.

Trouble is, our systems don't seem to be getting any more effective.

Maybe we should deep-six the fancy stuff, at least for a while. Maybe, instead, we should adopt some variations on Turing's 50% rule of thumb to put how well we're doing into perspective.

For example, are users convinced that a system is actually useful more than 50% of the time?

If not, you've got a system that simply doesn't do what it's supposed to do. Maybe you should rip it out and replace it.

Does any one employee actually use more than half the system's features? If not, you've got either bloatware or a serious lack of user training — and usually an oversupply of features.

Maybe you should trim out the unnecessary code. Or, if different feature sets are used by different groups of users, maybe what you need are several simpler versions instead of one large, complex version that will eventually become a nightmare to maintain.

Do users believe more than 50% of the system's features are useful? If they don't, you've got a worse problem than bloatware — your users have lost faith in the system's usefulness. You need to do a much better job of explaining what the system's features are and what their value is.

Do more than half of your users think the system is sufficiently responsive? If they don't, you need to tweak your networks or start beefing up your hardware — *that* many users can't be wrong about the meaning of "fast enough."

By now, you've probably noticed that these aren't questions you can resolve by counting bugs or monitoring network loads. To get these answers, you'll have to talk to your users.

But you shouldn't stop at questions about features and responsiveness. Find out how satisfied your users are. Does the system make their targeted task 50% easier? Does it let users perform the task 50% faster — or at least make it faster 50% of the time? Do users think the system pays for itself at least half the time?

To see how IT is doing, it's time to deep-six the fancy metrics.

Although users may not know what the system actually cost, if they really believe the system is returning its investment, that vote of confidence means you're doing something very right.

It means they think of the system as a valuable tool — not as deadweight slowing them down.

Sure, these 50%-rules-of-thumb are unscientific. They're anecdotal, inconclusive, maybe even frivolous, compared with all those *real* metrics that you can gather.

But ignore these unscientific rules at your peril. They'll give you the bottom line on how your systems stand with users.

And there's nothing artificial about that sort of intelligence at all.

Hayes, Computerworld's staff columnist, has covered IT for 20 years and still has at least 50% of his thumbs. His E-mail address is frank_hayes@computerworld.com.

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If you're far behind on year 2000, there are emergency maneuvers you can try – but they're long shots

By Alan Radding

YEAR 2000 CRUNCH TIME has arrived. If your critical business applications aren't fixed and being put through the testing process by now, you're heading for problems. Managers hoping to win the year 2000-compliance game at the buzzer are bound to be disappointed. Even the most promising crunch-time tools and tactics are problematic at best — not the sort of thing on which anybody wants to bet their business or career.

"If companies are not well under way by now, they will probably find themselves in big trouble," says John O'Brien, consulting manager at Systems Integration Group Inc. in Houston. At this point, O'Brien's best recommendation is aggressive triage: Identify only the most critical systems and fix them as fast as possible, letting everything else slide. For example, fix your sales order entry systems so you can continue to process orders after Jan. 1, 2000. On the other hand, you can leave your decision-support applications for later — the business will survive if static historical data gets sorted improperly for a while.

In the crunch-time rush, don't forget the upside to the year 2000 problem — better systems. "I just couldn't justify rewriting all our reports until the Y2K problem," says Chuck Kensicki, director of business management systems at the office of the chancellor of the California State University System in Seal Beach, Calif. His data mart strategy not only ensures that his users will be able to access key data, but also delivers "much better reports than the old green bar," he notes.

For those falling dangerously behind, year 2000 project managers and consultants offer up some crunch-time tactics. Be advised, however: There are no magic solutions. The following tools and tactics may prove helpful, but there are no guarantees. Every crunch time situation is different.

Data Migration Tools

Escape the year 2000 problem altogether by migrating to year 2000-compliant packaged applications. That's a favorite strategy, but you'll need some shortcuts at this late date. Borders Group Inc. in Ann Arbor, Mich., pulled off a switch to PeopleSoft Inc. applications in just 11 months with the help of a data-migration tool from Convoy Corp., which expedited the process of extracting the data from the legacy system and transforming it into year 2000-compliant form, says John Cooper, project manager at Borders. The Convoy data-migration tool trimmed three to four months off the implementation process, he says.

Any good automated data-migration tool can speed up the task. If the organization is ready to start implementing the packaged application today and is willing to accept the package's default configurations, it might pull off a migration in the months remaining. But it will be close.

For anyone else, it's already too late.

Escape to a Hot Site

If your hardware and communications infrastructure rather than your application is creating your year 2000 problem, you can run to a "hot site," where disaster-recovery vendors such as Comdisco Inc. in Rosemont, Ill., offer year 2000-compliant platforms. For most companies, however, the biggest year 2000 problems are buried in the application logic and data, not the hardware or communications infrastructure. "If the code won't work at home, it won't here," warns Allan Graham, senior vice president at Comdisco.

Speed Up Testing

The actual year 2000 code fix is relatively simple and straightforward. It's the testing that's arduous and time-consuming. Preparing and aging the data for test purposes represents a substantial testing bottleneck. Automated data-aging tools can speed the process and lop months of work off the task, but such tools vary widely in performance, consistency and reliability. After testing four automated aging tools, Sage Consulting LLC, a year 2000 consulting firm based in Princeton, N.J., turned to Princeton Softech Inc.'s Ager 2000, which Sage said did best in terms of consistency of results. "With Ager 2000, it takes one-tenth the time to age mainframe data compared to writing it yourself in Cobol," reports Ed Soesman, a consultant at Sage.

Continued on page 78

UP A CREEK?
Here's a

Paddle

Continued from page 76

There are several data-aging tools available. For example, United Stationers Supply Co. in Des Plaines, Ill., uses TransCentury File Age and TransCentury Date Simulator from Platinum Technology Inc. to prepare data for year 2000 testing. The company completed its year 2000 code corrections around Thanksgiving and is devoting the time remaining to testing the resulting programs and contingency planning, says Bob Niedzwiecki, year 2000 project director. "We're examining our processing schedule for the last business day of 1999 to minimize the risk of any jobs running at midnight."

Testing Alternatives

Complete testing is a big, time-consuming job. With so little time remaining, many companies need to shortcut testing. Those desperate for quick-and-dirty testing can try a dipstick test, which is a way to avoid comprehensive testing, explains year 2000 consultant Gregory Morris, CEO of Flat River Technologies LLC in Mount Pleasant, Mich.

Dipstick testing involves using two automated testing tools to review a sample of fixed code. If the sample code tests well with both tools, you can assume the code is pretty solid. Morris uses testing tools from Platinum Technology and Micro Focus Inc. for Cobol code testing. Any two testing tools will do the job, however.

Dipstick testing can work in some cases, but you're taking a real chance, Soesman warns. In situations where there are extensive dependencies among many pieces of code, this approach becomes risky because you're not testing the full code with all of its dependencies. It also requires buying, implementing and learning two tools so you can get, in effect, two views of the same code. That also takes precious time.

We're examining our processing schedule for the last business day of 1999 to minimize the risk of any jobs running at midnight.

BOB NIEDZWIECKI, YEAR 2000 PROJECT DIRECTOR, UNITED STATIONERS SUPPLY CO.

Independent Verification and Validation

Independent verification and validation (IV&V) involves using assessment tools to do essentially the same thing as dipstick testing, but IV&V takes place during the assessment phase, when you're scanning code to determine the likelihood of year 2000 problems. If you haven't even started code assessment, a key triage step, IV&V can speed you along.

"It is really like getting a second opinion on your code, and it can save a lot of time," says Steve Frycki, managing director of year 2000 services at DMR Consulting Group Inc. in Edison, N.J. IV&V saves time

FAST FACTS

Y2K Site-Seeing

Here's a sampling of year 2000 Web sites that could prove useful to information technology managers – along with comments on how useful we thought they were.

Year 2000 expert Peter de Jager has put together quite an informational resource for IT folks. You'll find things such as links to press clips, vendors and products, user groups, conferences, job opportunities (a limited list), year 2000 stocks, and hardware and software compliance information. It's well-organized, and we had no trouble linking to any of the sites.
■ *www.year2000.com*

Our very own year 2000 resource offers links to year 2000 sites. *Computerworld* articles dating back to early 1997, periodicals and books, reports, vertical industry information, product sampling, legal guidelines and user groups. We also have an ongoing feature, called Year 2000 Chronicles, in which we track six companies as they deal with the political, staffing and technical issues that surround year 2000.
■ *www.computerworld.com*

Reporting the results of a survey conducted in December, Cap Gemini America LLC states, "With one year remaining until the new millennium . . . a majority of America's largest corporations have already experienced Year 2000-related failures. Nearly all of the companies surveyed – 98% – expect more such failures in 1999." The site also offers other year 2000 information.
■ *www.usa.capgemini.com*

The primary information offerings here include listings of and links to Ed Yourdon's publications, including articles and books such as *Y2K for Fun and Profit* and *Time Bomb 2000*. But Yourdon's site also offers the most comprehensive list of related books and articles that we've come across in site checks. One of the sites, the Y2000 Personal Preparation site (*www.readyforY2k.com*), includes articles, checklists and links to various vendors of books, food and other material.
■ *www.yourdon.com*

This touts itself as a site that offers quick links and informational databases, along with evaluation of year 2000 software and hardware. But we found it a bit confusing.
■ *www.Y2Klinks.com*

This site calls itself the official site of the President's Council on Year 2000 Conversion. Here you'll get updates on the council's activities, information on the economic impact of year 2000, various articles on compliance, consumer links and information about Social Security issues. It's easy to navigate, but some links lead only to telephone hot lines, which then lead you to frustrating "press 1 for this" messages.
■ *www.Y2K.gov*

The founders of this site are technology lawyers. They offer information about legal issues, and they have opened up the site to lead visitors to other sources of information, such as year 2000-related articles, vendors and conferences. A disclaimer warns that the statements and links in the vendor listing "are paid advertisements."
■ *www.Y2K.com*

This site was created by a former CEO of United Press International. It appears to be geared to the general public and offers a "Y2K-today Resource Guide" that gives an overview of what the problem is, what's being done about it, and how your community and business can prepare. The site is very well-organized, easy to navigate and interesting. It tracks year 2000 articles by industry and even has its own radio program. One of the links takes you to the Cassandra Project, which is run by a nonprofit group that discusses community preparedness.
■ *www.Y2Ktoday.com*

The Information Technology Association of America 's (ITAA) Web site provides information about the IT industry, association programs, publications, meetings, seminars and more. It also offers links to an extensive year 2000 resource page that provides a directory of vendors (133 are listed, but they aren't organized by groupings), links to surveys, ITAA books and publications, information about a year 2000 task force consisting of computer software and services vendors and the "Y2K Outlook Newsletter," which is available by subscription.
■ *www.itaa.org/year2000.htm*

Gartner Group Inc.'s package of year 2000 information features a very interesting report geared to real people. That's right – how is all of this going to affect us, not just how your company is going to beat the deadline. The report, "Year 2000 Risk Assessment and Planning for Individuals," provides lists of year 2000 risks for individuals' problems, along with suggested actions. The bottom line: Prepare for short-term, localized failures of services and infrastructure rather than an apocalypse. Go to "Hot Content" to find this report.
■ *www.gartner.com*

This site, hosted by Electronic Systems Center and The Mitre Corp., sets itself apart from other useful sites by identifying potential year 2000 problem dates (such as the leap year) and offering steps to correct them. It also offers extensive links to other sites.
■ *www.mitre.org/research/y2k*

because it can help you rule out code that's unlikely to cause problems, allowing you to concentrate efforts on known problem code in the remaining time. Of course, you still must fix code that shows up badly in the dual assessmeot. Also, the results aren't foolproof — bad code can slip through.

Most leading assessment and testing tool vendors offer IV&V products. However, the tools were intended not to be a shortcut for the initial code assessment process but a final check once all the fixes were completed and tested. "IV&V is really part of litigation-proofing, the final step in the Y2K process," Morris says.

Ensuring Access to Key Data

If there's no way to save your applications, you at least can ensure continued access to critical data while programmers madly scramble to fix the code — at least that's the logic behind the data mart strategy promoted by Brio Technology Inc. The plan calls for moving critical data into a year 2000-compliant database, such as an Oracle Corp. product. In the data-transfer process, automated migration tools easily can expand two-digit dates to four digits.

Then, by using whatever year 2000-compliant front-end tool the organization prefers, end users can continue to access critical data — even if the usual applications and mainframe data reports are experiencing problems.

The California State University System adopted that approach for its financial reporting systems, which serve 23 college campuses. It built a 12G-byte data mart on an Oracle database and adopted Brio tools for front-end access instead of rewriting 400 to 500 non-year 2000-compliant mainframe reporting programs, Kensicki says.

Kensicki installed an Oracle database on the systemwide extranet. The legacy data automatically is converted to the four-digit date format as it's loaded into Oracle. Kensicki's team quickly set up reports in Brio, and end users create their own reports, further speeding the process. This approach freed Kensicki's programmers to go back to work on the mainframe application and date logic. "If we had to do it all on the mainframe, we'd still be at it," he says.

Although the data mart approach — using Brio or other front-end data access tools such as those from Cognos Inc. and Business Objects S.A. — sounds attractive, it has its limitations. First, it solves only the reporting problem — it does nothing about updates and transactions. For year 2000 purposes, it buys you only as much time as you need to function without processing new transactions, although a larger benefit in terms of better reporting transcends the year 2000 problem.

Second, setting up a data mart isn't trivial. "This is a smart tactic if you can do it, but it is really for the chosen few," says Russ Kelly, a year 2000 consultant in Seneca, S.C. Data marts, he points out, are neither inexpensive nor easy to build. If you're starting from scratch, you need to buy and install the database, data extraction and transfer tools and the front-end tool. You will have to determine if the benefits are worth diverting money and time from your primary year 2000 repair effort.

With year 2000-compliant PCs available for less than $1,000, it makes sense to replace problem PCs. However, "we have clients with older PCs that they just can't replace due to the cost involved," says Jason Mitchell, a senior systems engineer at Kiefer Confanti and Co., an accounting and consulting firm in St. Louis.

To solve the problem of old PCs, Mitchell recommends PCFix 2000 from The About Time Group in Atlanta. Once installed, the tool masks any year 2000 problems with the hardware and BIOS every time the machine is booted.

Memory Hogs

There are numerous tools that fix PCs by masking year 2000 problems in the hardware or BIOS, but many of the tools are based on terminate-and-stay-resident (TSR) programs and thus consume memory, which is in short supply on the older PCs most likely to need this type of fix.

PCFix 2000, Mitchell reports, doesn't consume system resources the way TSR-based fixes do. Mitchell says the network-downloadable PCFix allowed him to make a 30-user LAN year 2000-compliant in two hours. The tool doesn't do anything with PC applications or data that may suffer year 2000 glitches and isn't recommended as a long-term solution. "But when you're under budget and time constraints, it really works," Mitchell says.

There also are desktop utilities that fix PCs, but they typically have to be implemented one PC at a time. If you're looking at a few thousand — or even a few hundred — legacy PCs in need of a fix, you have a lot of work to do in the short time ahead. ◗

Radding is a technology writer in Newton, Mass. He can be reached at radding@mediaone.net.

Report Excerpts

■ Gartner Group
"Year 2000 Risk Assessment and Planning for Individuals" (Oct. 28, 1998)

Individuals in Australia, Canada, the Netherlands, Scandinavia, the U.K. and the U.S. will have some disruptions, inconveniences and discontinuities during the first week of January 2000. The biggest risk is from failures and outages of telephone and power service, but the rest should be manageable. Countries in Asia and Latin America and emerging countries will have potentially larger disruptions because businesses and governments in those areas are behind in fixing critical functions.

The largest enterprises – banks, retailers, distributors and manufacturers – in general will be the most prepared and have the lowest risk factors. The same is true for most large multinational enterprises. Most of those companies started to prepare early and have had the resources to at least fix their most important systems. Failure of critical government systems continues to pose the greatest threat.

Individuals should make contingency plans based on the risks in their countries. Travel anywhere in the world in January 2000 should be deferred if possible. The progress by banks and investment companies in solving year 2000 problems should be monitored. Gartner Group doesn't recommend liquidating assets or withdrawing all funds from banks.

A key risk for individuals:

Being employed by an enterprise that, because of poor year 2000 preparation, suffers significant damage (such as business interruption or legal damages) that jeopardizes future employment.

Big vs. small:

Small enterprises are further behind than midsize and large companies. Individuals should maintain awareness of the status of their employers' year 2000-compliance status.

Heads up:

Be extra careful about scams and unqualified advice. Be aware that broadcast news and the business press may have very pessimistic outlooks because of information circulated by those with vested interests – that is, year 2000 service and software vendors, private consultants and consulting companies.

■ Cap Gemini
December 1998 report on Year 2000-Related Computer Failures

The survey shows that a majority of America's largest corporations already have experienced year 2000-related failures. Nearly all the companies surveyed (98%) expect more such failures this year. More than half the organizations (74%) expected that more than half of their systems were to be tested and compliant by Jan. 1, 1999. However, 92% reported that missed deadlines in their year 2000 plans are increasing, up from 84% in July 1998.

The number of companies that are very likely, or potentially likely, to stop doing business with noncompliant suppliers rose to 69%, up from 60% in the third quarter of 1998.

■ Cutter Information Corp.
"IT Metrics Strategies" newsletter, edited and survey data by Howard Rubin

Actual year 2000 spending is far lower than budget estimates. Most companies estimated they would spend 20% to 30% of their IT budgets on year 2000, but U.S. figures indicate the actual level is about 8% to 9%.

Contingency planning is now under way at 90% of those organizations surveyed – up from 72% in June 1998 and only 3% in March 1998.

The plans are being developed by existing continuity teams in 20% of cases, by year 2000 teams in 35% of cases and by joint teams in 45% of cases.

Most of this work (60%) focuses on prevention of disruption; 30% focuses on mitigating problems once they occur; and 10% focuses on both approaches.

For more information on this report, visit *www.cutter.com*

– Compiled by Cathleen Gagne

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Awards from Academy of Web Design, American Society of Business Press Editors (ASBPE), Computer Press Awards (CPA), Folio:, Public Relations Society of America (PRSA), Editor & Publisher Magazine and the Western Publications Association Press mentions: Lexis-Nexis (Forbes, Business Week, Fortune, NY Times, Wall St. Journal) 9/1/96 to 9/1/98.

Nothing Could Be Finer . . .

North Carolina IT managers are upping compensation and hiring whole hog

BY DEBORAH RADCLIFF

KEITH WOOD went back to school and snagged a $35,000 help desk position at one of the largest area law firms after only three semesters at Forsythe Technical Community College in Winston-Salem, N.C.

Project manager John Manderewicz, relocating from Florida, entertained four offers before taking a job at Piedmont Natural Gas Co. in Charlotte, N.C. Now his searches for project managers take six to nine months.

GREATER RALEIGH CHAMBER OF COMMERCE

Welcome to North Carolina, a state so hungry for IT workers that hiring bonuses are the rule rather thao the exception.

It's a state that falls in the middle of one of two of the most aggressive hiring regions for this year, according to *Computerworld*'s Jobs Forecast '99. According to the Bureau of Labor Statistics, North Carolina's technical job openings will increase by 200% to 500% from 1996 to 2000.

Move over, textile and tobacco companies — the high-tech, medical research, financial and insurance industries are taking root. For those who don't mind an occasional hurricane or smelly pig farms (North Carolina is the state with the second-largest number of hogs, according to *The News & Observer* newspaper in Raleigh), this renaissance spells opportunity for information technology workers at all levels.

Entry-level work can pull in wages comparable to the median income of, say, Boston, where the cost of living is nearly 30% higher than in North Carolina. Seasoned project managers can write their own tickets. Networking specialists, middleware and mainframe developers, Microsoft Certified Engineers (MSCE) and specialists certified in Oracle Corp., PeopleSoft Inc. and Cisco Systems Inc. technologies also can expect premiums.

Research Triangle: Raleigh, Durham and Chapel Hill

The key to North Carolina's evolving economy is efficiency. Hence, Blue Cross/Blue Shield of North Carolina in Durham is migrating to an AS/400 system to support a new, streamlined product line. "This means hiring for a whole new set of skills," says Norm Phelps, senior vice president of operations/data center services.

Last year alone, the company struggled to fill 150 openings, mostly mainframe, LAN and WAN developers and hardware specialists, along with a number of MSCEs. "Depending on a person's skills and how long they've been working on mainframes, they can demand [$70,000] to [$80,000] for jobs in this region," Phelps says.

Charlotte

Piedmont Natural Gas is streamlining operations by moving its financial and human resources operations to a PeopleSoft system. W. R. "Dick" Pritcherd, vice president of information services, is trying to fill 20 positions in his 100-person IT shop. Specifically, he needs Oracle database administrators and Windows NT, Unix and PeopleSoft specialists.

Piedmont also has revamped salaries to reflect the growing economy. "In the past 12 months, we've changed our compensation programs substantially. We're offering variable pay components and pay based on performance along with bonuses for successful completion of projects," Pritcherd says.

Winston-Salem

Inmar Enterprises Inc., a store coupoo and expired-product clearinghouse in Winston-Salem, is betting on its new Citrix Systems Inc. thin-client terminal servers and Web-based computing to improve efficiency.

Gary Sloat, director of IT at Inmar, says his organization has learned so much about thin-client development that it just opened a division to develop such networks for other firms.

But when Inmar tried to partner with Microsoft Corp. for its SQL Server 7.0 work, Sloat ran into a problem: A three-month search failed to find the two MSCEs Microsoft required. So he's sending staffers to school, with Inmar footing the bill.

When asked what advice they would offer job hunters, IT managers from all regions chimed, "Come here."

Manderewiez recommends seeking jobs in high-growth areas and staying in a vertical industry you have worked in before. If you're unsure about laying down roots, Piedmont's Pritcherd suggests testing the area as a contractor.

Interestingly, none of these managers breathed a word about the pig problem, news of which earned *The News & Observer* a Pulitzer Prize three years ago.

Radcliff is a freelance writer in Northern California. Contact her at DeRad@aol.com.

IT in North Carolina

Companies with large IT staffs

COMPANY	IT EMPLOYEES
Charlotte	
First National Bank of N.C.	1,300
Duke Energy Corp.	1,000
Allstate Insurance Co.	100
Piedmont Natural Gas	100
Durham	
IBM Integrated Solutions Center	1,700
Glaxco Wellcome Co.	600
Lockheed Martin Corp.	500
Laboratory Corp. of America	250
Raleigh	
Square D Co.	400
N.C. Information Processing Svs.	357
First Citizens Bancshares	250
GE Capital Mortgage Co.	250
Electronic Data Systems Corp.	120
Winston-Salem	
US Airways Group Inc.	600
Pleasants Hardware Co.	100
Sara Lee Direct	100
Baptist Medical Center	125

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IT Top 10 in N.C.

IT managers say they will be hiring for these job titles most often this year

1. Project manager
2. Senior programmer/analyst
3. Senior systems analyst
4. Network administrator
5. PC technical support specialist
6. Programmer/analyst
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8. LAN manager
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10. Computer operator

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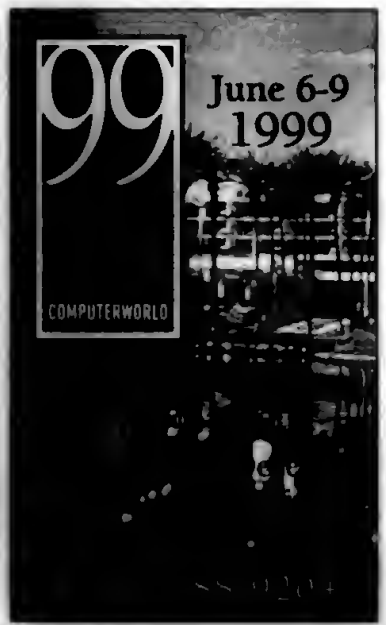

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Sr Programmer Analyst wanted by IT Co in Union NJ Must have 3 yrs exp dsgng & dvlpg client/server applics using Power Builder as GUI and Sybase as the relational database BS in Comp Sci required Respond to HR Dept Patel Consultants Corp 1525 Morris Ave Union, NJ 07083

Systems Analyst needed by Developer in Amherst NH Must have 1 yr experience analyzing procedures reqmts & problems for users who use image processing applics and dvlpg s/ware applics using & imprvng advanced image processing algorithms and using Intel Assembly, C & C++ w/OOD envmt on WIN 95/NT Bach in equiv in Comp Sci, Electrical Engg, Electrical Product Engg in S/ware Engg req'd Respond to HR Dept, Black Ice Software Inc, 292 Rte 101 Salzburg Square Amherst NH 03031

UNIX System Administrators wanted for NJ IT company to install configure Sun Solaris Operating System and design implement fault tolerant servers Must have 2 years experience Apply to Global Consultants, 601 Jefferson Rd Parsippany, NJ 07054

Software Engineer needed by Computer Services Co in Englewood, NJ Must have 6 mos exp analyzing, dsgng & dvlpg comp s/ware for Novell & Windows NT networks using C/C++ and Power Builder and dvlpmt of internet/intranet applic using JAVA Pre degree experience okay Respond to HR Dept PC Warehouse 70 E Palisade Ave, Englewood, NJ 07631

Database Administrator needed F/T by S/ware Dvlpmt & Consultancy Co in Parsippany, NJ Must have Masters in Comp Sci or Comp Engg & 2 yrs experience as Database Administrator Respond to HR Dept, Distinctive Systems, Inc., 14 Arnold Drive, Parsippany, NJ 07454

Software Engineer / Network, wanted F/T by IS/IT Professional Services Co in Metuchen, NJ to work at various unanticipated client locations in the US Must have 2 yrs exp in n/work dsgn & implmntn, Bachelors in Comp Sci, Comp Engg, Electrical Engg or Electronics Engg, expertise in n/work dsgn & implmntn and n/work certification Respond by resume to: HR Dept Netcom Systems Inc 61 Pearl St Metuchen, NJ 08840

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Software Engineer wanted by Co involved in Computer & S/ware Sales, Service & Consultation in Houston TX. Must have 3 yrs exp desgng & dvlpg comp s/ware systms in conjunction with h/ware product dvlpmt applying principles and techniques of comp sc, engg & mathematical analysis. Respond to HR Dept, Houston Computer Center Inc 5825 Sovereign Rd Ste 118, Houston TX 77036

Software Engineer needed by Co involved in Sales, Service, Mfr of Industrial Eqpmt in Houston, TX. Must have 2 yrs exp researching, dvlpg, dsgng embedded control s/ware using advanced control theory & techniques, s/were engg techniques, microprocessor based control & prgmg techniques and researching & dvlpg advanced communication s/ware for in verter systm interface in mwork envmnt. Masters in Comp Sc or Electrical Engg req'd. Respond to B Durr Toshiba Int'l Corp, 13131 West Little York Rd, Houston, TX 77041

Programmer/Analyst (Client sites in Dallas, TX area) Analyze, design, develop, test, implement, and maintain commercial and financial applications systems using COBOL and CICS on IBM mainframes. Bachelor's degree in Comp. Sci., Engin., or Math, and 2 yrs exp. in job req., 40 hrs/wk, 8:30am-5:00pm. $42,224/yr. Apply at the Texas Workforce Commission, Dallas, TX, or send resume to 1117 Trinity, Room 424T, Austin, TX 78701, J.O.# TX0610502. Ad Paid by an Equal Opportunity Employer.

Sr Applications Consultant Chicago Develop software for retail clients needs. Perform merchandise & sales forecasts, service analy & store profiles capacity plans. Develop trend analyses & math models. 46 hrs/wk, 9-5, $57,440/yr Req. B.S. in Comp Sci, Math, Stat or rel. field, 3 yrs exp req in job offered or as Prog Anal, QA Anal., or Systems Anal. Must have proof of legal authority to work permanently in the U.S. Send resumes to ILLINOIS DEPT OF EMPLOYMENT SECURITY, 401 S State St 7 North, Chicago, IL 60605 Attn: Lola Jackson Reference #V-IL 184804 An EMPLOYER PAID AD NO CALLS SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Software Engineer 40hrs/week, $32.50 an hour Research, design develop and implement computer algorithms utilizing COM/OLE. Code and implement software mainly used in construction and manufacturing of building or industrial materials such as graphics modeling, structural analysis, pricing, and report generations. Evaluate interface between software and hardware, and operational performance. Apply principles of engineering to analyze and measure outcome and sequence of design. Other tools used are Visual Basic C/C++, MFC SQL Database and Object Oriented full life cycle development. Requires a Master's degree in Engineering field such as Civil, Manufacturing, or Computer Engineering with 2 years direct experience. The job order # for the job opportunity is 138162. Must have proof of legal authority to work in the United States. NO CALLS PLEASE. Send resume to Shirley J. Gregory, Missouri Division of Employment Security, 1411 Main St, Kansas City, MO 64105.

Manager MIS Manage the MIS department, including network design, configuration & admin, database admin & design, & UNIX system admin. Tools: C, UNIX, Informix, TCP/IP, Ethernet, Visual Basic, OLE Automation, 4GL, Novell Netware, Windows NT, JAVA, perl, CGI, MS in Comp Sc or Electrical Engg + 6 mos exp in job offered or as Research Asst/Comp Consultant. Previous exp must include C, UNIX, Novell Netware. 40hrs/wk, 8am-5pm, $70,000/yr. Must have proof of legal authority to work permanently in the U.S. Send two copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, IL 60605, Attn: Sheila Lindsey, Reference #V-IL-20041-L. NO CALLS. An Employer Paid Ad.

Programming Specialist - assists in determining user requirements, writes business applications in COBOL II, CICS and DB2 languages in IBM CMOS, MVS/ESA and EDI environments, prepares program test data, documentation and back up and tests same, develops new subroutines or expands program. Must have documentable ability to program in COBOL II, CICS and DB2 languages for diverse business and technical applications. B.A. or B.S. in computer science or math and 2 years experience. Hours: Mon - Fri. 7:30 A.M. - 5:30 P.M. Lowell, Ark. Salary $46-58,000 per experience. Apply at Ark. Employ. Sec. Dept., 1626 S. 8 ST. Rogers, AR or send 2 resumes to David Hayes, PO Box 2981, Little Rock, AR 72203, job order #959951

Progammer Analyze, code & test software for management information systems. Tools: C/C++, UNIX, Oracle, JAVA, Excelerator, SEI Capability Maturity Model. BS in Comp Sci + 6 mos. exp. in job offered or as Graduate Asst. req. Previous exp must include C/C++, UNIX, Oracle. 40hrs/wk, 8am-5pm, $44,000/yr. Must have Proof of legal authority to work permanently in the U.S. Send two copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, IL 60605, Attn: Joanne Breaux, Reference #V-IL 20153-N. NO CALLS. An Employer Paid Ad.

Research Web Analyst needed by Non-Profit Foundation in Champaign, IL. Must have 2 yrs experience in conducting quantitative/economic analyses of projects and using web interface languages. Bachelors in Economics req'd. Respond to: Nature of Illinois Foundation, 701 Devonshire Dr. Ste 2055, Champaign, IL 61820-3321

National Instruments Corp., a Software/Hardware Dvlpmt Co in Austin, TX, is looking to fill the following positions:

1 Sr. Software Engineer (wireless communication) to provide digital processing s/ware using knowl of modulation schemes & implmt signal processing algorithms. Must have MS in Engg or Comp Sc & 2 yrs exp.

2 Sr. Software Engineer (Sound & Vibration Analysis) to research dsgn, dvlp sound & vibration test s/ware & dvlp s/ware for acoustical measurement & data acquisition. Must have Masters in Engg or Comp Sc & 4 yrs exp.

3 Software Engineer (Image acquisition) to research dsgn, dvlp s/ware for image acquisition & analyses using low level driver for image acquisition h/ware dsgn and using C function library & configuration utility for hi-level s/ware for image acquisition h/ware. Must have Bach. in Comp Sc or Engg.

Respond to: Tom Lucas, National Instruments Corp., 11500 N. MoPac Expwy, Austin, TX 78759. Please reference job code: ISW.

Magic Programmer/Analyst wanted to analyze and design and user requirements, design and implement systems to manage operations, maintain and write programs using Magic. Software research design and develop computer software, analyze software requirements to determine feasibility of cost and time, consult with client to evaluate interface between hardware and software and develop and direct software testing procedure. Position is for 40 hours per week, from 9am to 5pm daily. Salary is $57,450 per year. Position requires Bachelor of Science degree in Computer Science or Electrical Engineering, and two years as a Magic Programmer/Analyst in the job offered. Must have proof of legal authority to work permanently in the U.S. Interested applicants should send resumes to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 S. State St. - 7 North, Chicago, IL 60605, Attention: Joan Sykstus, Reference # V-IL 20260-S. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Software Developer Analyst design planning, development, implementation and installation of IT solutions for client applications. This work also includes requirements analysis, infrastructure design, migration planning, operations planning, deployment management, and support. Developmens of software using 4GL languages, Oracle, Visual Basic and Crystal Reports on various computer platforms. Bachelors degree in MIS, Computer Science or Information Management required as well as 1 year experience in computer field with specific experience with Crystal Reports, Visual Basic, and Oracle. $48,000/year. 40 hours/week. Qualified permanent U.S. workers are encouraged to apply for this/these position(s). Two (2) resumes to Miss Brooks, Jobs, Employment and Training Services (JETS), 2 1 E. Washington Avenue, PO Box 7972, Madison, WI 53707-7972. Refer to Case #C100466. Employer Paid Ad.

Computer Programmer/Analyst wanted to research, design and develop computer software systems in conjunction with hardware product development using MAGIC software with Oracle database in UNIX environment. Analyze software requirements for cost feasibility, consult with clients, develop software system testing procedures and documentation and perform troubleshooting and maintenance of software systems. Position is for 40 hours per week, from 9am to 5pm daily. Salary is $57,450 per year. Position requires Bachelor of Science degree in Engineering or Computer Science 2 years experience as a Computer Programmer Analyst in the job offered or 2 years as a Software Consultant. The applicable 2 years experience must include 2 years experience developing applications using MAGIC with Oracle under UNIX environment. Must have proof of legal authority to work permanently in the U.S. Interested applicants should send resumes to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 S. State St. - 7 North, Chicago, IL 60605, Attn: Joan Sykstus. Reference # V-IL 20262-S. AN EMPLOYER PAID AD. NO CALLS. SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Software Engineer [illegible] wanted to develop [illegible] applications in a UNIX [illegible] environment, research, design and develop programs [illegible] with hardware design [illegible], analyze software requirements to determine feasibility of design, consult with clients to evaluate interface [illegible] hardware and software, direct and develop testing [illegible] programming and documentation, educate developers in UNIX utilities, create disaster recovery and data migration, and will supervise 3 people. Position is for 40 hours per week, from 9am to 5pm daily. Salary is $64,085 per year. Position requires Bachelor of Science degree in Computer Science and 5 years experience as a Software Engineer Supervisor in the job offered or 5 years experience as a Computer Programmer. The applicable 5 years experience will include 1) 1 years supervisory experience, 2) 5 years SQL experience, and 3) 5 years UNIX experience. The experience can run concurrently. Must have proof of legal authority to work permanently in the U.S. Interested applicants should send resumes to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 S. State St. - 7 North, Chicago, IL 60605, Attention: Joan Sykstus, Reference # V-IL 20261-S. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Sr Software Engineer. Duties: Perform software development inc project mgmt, systems study, database design, application develop, applications fine tuning, & systems implementation using Oracle 7.x, Oracle Developer 2000, SQL *Forms 3.0/2.3, PL/SQL, Pro*C, Oracle Financials, Oracle Applications, Object Library (AOL), Systems Administration, Flex Fields, UNIX, VAX/VMS and Windows 95. Coordinate with client and team members to accomplish goals and ensure project deadlines are met. Perform maintenance and provide support for hardware systems like Digital VAX machines, HP9000, Sequent Dynix and Pentium PCS. Requires bs in Comp or Info Science, Eng, or related field (will accept B.S. & 5 yrs progressive exp in the computer ind.) & 3 yrs. exp. in the job offered or 3 yrs. exp. as a Systems Consultant, Software Eng. or System Analyst Exp. which may have been obtained concurrently; must incl 3 yrs exp performing software develop. incl database design applications develop. & system implementation and 3 yrs. exp using Oracle & PL/SQL languages & UNIX operating systems. EOE. 40 hrs/wk, 8:00 a.m. to 5:00 p.m. Salary $85,000/yr. Send resume (no calls) to: Christine Connolly, CTG, Inc., 200 Public Square, Enterview 3rd Fl. Cleveland, OH 44114

Programmer Analyst. Plan, develop, test & document computer programs, applying knowledge of programming techniques & computer systems. Evaluate user requests for new or modified program, such as for financial or human resource management system, to determine feasibility, cost and time required, and compatibility with current system. Design and develop software systems and network management systems in C++ and C programming for Unix and Windows environments. Communicate with users and ascertain requirements for new and enhanced automated facilities, design new applications and enhancements to automated systems and graphical user interfaces. Develop software testing procedures, programming, and documentation. Developing and maintaining proficiency in technical and analytical tools as defined by company standards. Required: Develop client-server and network management applications using C, C++, Java, Unix Shell Scripts, SQL, RDBMS (Informix), HP Open Views, NerveCenter, BMC Patrol, X-Motif, Crystal Reports, and Visual Basic on Windows and Unix environment. Thought into all phases of software development life cycle and sound knowledge of structured and object-oriented paradigms. Familiarity with ATM, LAN, Ethernet, TCP/IP, SLIP and PPP protocols for systems development. Master's Degree in Computer Science or Engg. plus two years experience on the job offered or as a Software Engineer and/or Applications Analyst. In lieu of Master's Degree in Computer Science or Engineering, a Bachelor of Engineering or equivalent as determined by a professional credentials evaluation service and Master's Degree level course work in "Programming", "Computer Systems", "Software Engineering", and "Operating Systems". $55,000/year. 40 hours/week, 8:00 AM to 5:00 PM. Two copies of resume to M. Brooks, File#C100569, DWD, ALC PO Box 7972, Madison, WI 53707-7972. Reference file #C100569.

User Rep Intern) Accting (2 open positions) Design, develop, implement, maintain worldwide integrated internal financial info system software utilized by multinat'l organizations for financial/acctng. Study, analyze general plan prepared w/ corporate officials, obtain system req from corporate/dept'l acct'ng personnel to compile raw data for plan development. Develop methods/procedures for project accomplishment. Document systems/project req, time, staffing schedule, methods/procedures. Interpret internat'l finance/acctng policies/procedures to provide coding assistance to others engaged in systems design/coding. Oversee entering of source data/programs analyzing output to identify problems ordering corrections as req. Write user procedures manuals. Prep implement training plan. Job is in Pleasant Hill, IA. Req: Bachelor's in Business Admin, Systems, Eng or related discipline + 2 yrs exp or 2 yrs in Develop & implement financial system software. $45,000/yr 40hrs/wk, 8:30am-5:30pm. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 215 Keo Way, Des Moines, Iowa 50309-1727. Please refer to Job Order IA 1100822 and IA 1100830. Employer paid advertisement.

Delphi Programming Specialist assists in determining user requirements, writes business applications in Delphi, participates in code walk-through, testing and implementation activities to deliver business applications to user base, supports existing applications, develops new subroutines or expands program. Must have documentable ability to program in Delphi for diverse business and technical applications. B.A. or B.S. degree in computer science or math and 2 years experience. Hours: Mon - Fri. 7:30 A.M. - 5:30 P.M. Lowell, Ark. Salary $46-58,000 per experience. Apply at Ark. Employ. Sec. Dept., 1626 S. 8 St., Rogers, AR or send 2 resumes to David Hayes, PO Box 2981, Little Rock, AR 72203, job order #959938.

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Senior Software Engineer (3 openings) Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience using, 1 of Group A and 1 of Group B and 1 of Group C **OR** 1 of A and 2 of B **OR** 1 of A and 2 of C as follows: Group A: Windows NT, Windows 95, Windows SDK, Windows API. Group B: Visual C++, Visual C, C, C++, Visual Basic, PowerBuilder, MFC, CGI. Group C: JAVA, TCP/IP, HTML. Master's degree in one of several limited fields: Computer Sci/Apps, Eng, Chem, Math or Physics. Will accept B.S. degree with five years of experience as computer professional. Salary is $70,000 per/yr, 40 hrs/wk, 9:00-5:00 p.m. Please submit resumes to: Mr. Duane M. Brentzel, Mgr, Greensburg Job Center, 599 Sells Lane, Greensburg, PA 15601. Job Order No. 5023000.

Senior Software Engineer. Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation using relational data base management systems (RDBMS). Work involves extensive travel and frequent relocation. Must have three years of experience using RDBMS in a UNIX and/or Windows environment. Master's degree in one of several limited fields: Computer Sci/Apps, Eng, Chem, Math, Physics or business related field. Will accept B.S. degree with five years of experience as computer professional. Salary is $70,000 per/yr, 40 hrs/wk, 9:00-5:00 p.m. Please submit resumes to: Mr. Terry Kinney, Manager, Armstrong County Job Center, 1270 N. Water St., P.O. Box 759, Kittanning, PA 16201. Job Order No. 8046088.

UNIX SYSTEMS ADMINISTRATOR required. Administer UNIX systems and Informix databases. Master's degree required in Math, Computers, Engineering or any related field of study plus six months of experience. University work/project experiences may be used to satisfy the experience requirements. Must have proof of legal authority to work in the U.S. Salary: $38,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 11654-A E. 21st St., Tulsa, OK 74129 (ID #72-09). Phone #(918) 437-4437. Refer to Job Order #350567. Ad paid by an Equal Opportunity Employer.

Business Administration Manager with 1 year of experience, or with 1 year of experience as a Business Consultant Professional, who will direct and coordinate activities through subordinate supervisory personnel, concerned with computer consulting services. Prepares budgets, coordinates project activities according to cost and business constraints, develops new accounts and maintains current accounts using MS Access, SAS, SYSTAT, MS Excel, and MS Word. Master's of Business Administration degree. $60,000/yr, 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 5022750 to Mr. Richard Introcaso, Manager, Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

SOFTWARE ENGINEER Install client/server local network system and database server. Perform database design, backup, synchronization and replication. Design & develop Object-Oriented database related applications. Set up Internet connection and E-mail system. Writes technical reports. M.S. in Computer Science or in Computing & Information Science with 1 yr. exp. on job offer or 1 yr. related exp. in database programming & technical report writing. $60,762.00/yr. 40 hrs. wk. Apply at Texas Workforce Commission, Houston, Texas or send resume to 1117 Trinity, Room 424T, Austin, Texas 78701. JO# TX0611599. Ad Paid by An Equal Opportunity Employer.

Senior Software Engineer (4 openings) Designs and develops software systems, applying principles and techniques of computer science, engineering and mathematical analysis. Analyzes software requirements to determine feasibility of design and directs software system testing procedures, programming and documentation using SAP. Work involves extensive travel and frequent relocation. Must have at least one year of experience with SAP and Masters degree in one of several limited fields: Computer Science/Applications, Engineering, Math, Chemistry, Physics or business related field. Will accept a Bachelors degree plus five years of experience as a Computer Professional. Salary $100,000 per/yr, 40 hrs/wk, 9:00-5:00 p.m. Please submit resumes to: Mr. Tom Dembosky, Mgr, Indiana Job Center, 350 N. Fourth St., Indiana, PA 15701. Job Order No. 8046092.

System Engineer

Chicago computer consulting firm. Duties include installing LAN and WAN environments, installing and configuring file and application servers on multiple hardware platforms. MS in Computer Science w/ 2 yrs. exp. including detailed work in Netware for SAA, Microsoft Backoffice and Microsoft Exchange. Send resume and salary history to: **Human Resources, Job #108, OIE Systems, 150 S. Wacker Dr., Suite # 2950, Chicago, IL 60606**

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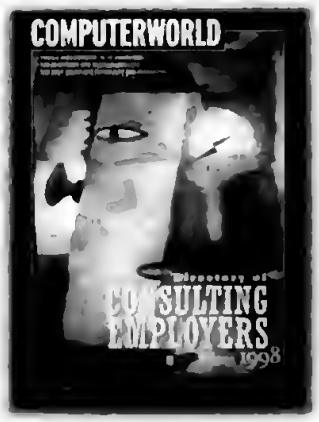

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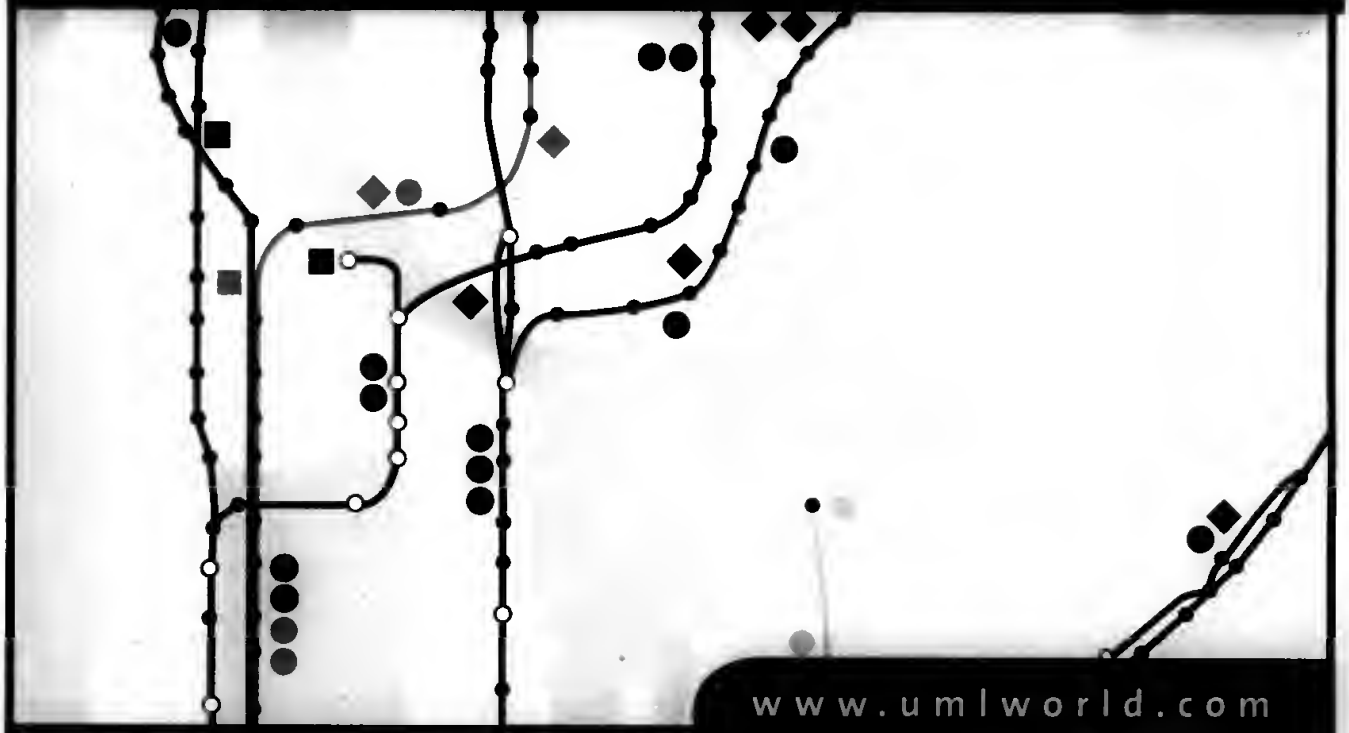

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BROKERS COPE WITH OUTAGES

Online delays can be costly for buyers, sellers

A SPATE OF BAD PUBLICITY has dragged down the stocks of several online brokerages. ETrade Group Inc. (Nasdaq:EGRP) suffered some embarrassment earlier this month when its online trading system was inaccessible to traders because of problems with a new software installation. Outages also hit the Web sites of The Charles Schwab Corp. (NYSE:SCH), Ameritrade Inc. (Nasdaq:AMTD) and privately held Datek Online Brokerage Services Corp. Investors have since battered ETrade's stock, sending it down from a peak of 62-7/16 on Feb. 1. to 48-1/4 on Feb. 11.

Ameritrade's stock was on fire during January, zooming from 31-1/2 to open the year to a high of 128-9/16 on Feb. 3. But it had fallen back to 98-1/2 by Feb. 11. Schwab, which has both Web-based and traditional customers, dipped from a peak close of 70-5/16 on Jan. 29 to 66-13/16 on Feb. 11.

Michael Chung, an analyst at Williams Capital Group in New York, says the stocks had been overvalued, with the run-up driven by day traders. But he says he's bullish on the brokers for the long term because they have tremendous growth potential. Chung calls the downturn a "very healthy correction" and a good buying opportunity.

Chung predicts a consolidation of online brokers within the next few years, with today's crowded field of more than 20 brokers narrowing to three or four major players. He says Schwab and ETrade are positioned to seize two of those slots; the others are up for grabs among players that include Ameritrade, Discover Brokerage Direct Inc., Datek and DLJ Direct Inc., a subsidiary of Donaldson Lufkin & Jenrette Inc. (NYSE:DLJ).

David Baltaxe, an analyst at Current Analysis Inc. in Sterling, Va., says reliability is more important in stock trading than in most online retail ventures because delays aren't just an inconvenience — they can cost the customer real money. "If you are not serving the customer to the degree the customer expects, the customer will go elsewhere," Baltaxe says.

Chung says the service problems should subside as the brokerages' systems mature and Internet bandwidth increases. *— Jeremy Selwyn*

Trading Peak?

Recent concerns over online trading limits have hit brokers' stock prices

DIGEST	52-WEEK HIGH	52-WEEK LOW	NAME	FEB. 12 2 PM	1-WEEK NET CHANGE	1-WEEK PCT CHANGE
SOFTWARE OFF -3.6%						
ADBE	54.67	21.81	Adobe Systems Inc	44.56	-0.88	-1.9
AZPN	145.81	9.97	Aspen Technology Inc	14.81	-1.75	-10.6
AUTO	161.06	71.63	Autodesk Inc	81.00	-4.75	-5.5
AVID	47.75	11.88	Avid Technology	16.88	-1.56	-8.5
BDSI	34.67	16.50	Bindview Development	17.81	-1.75	-8.9
CDN	39.00	10.13	Cadence Design Systems	16.75	-1.25	-6.9
CBYN	83.87	0.00	CBT Group Plc	7.75	-0.25	-3.1
CHKPF	146.00	10.87	Check Point Software Tech Ltd	87.00	-0.75	-0.8
CTAS	101.50	38.13	Cintas Corporation	42.00	-0.25	-0.6
COMV	30.50	14.75	Compuware Inc	23.00	-0.44	-1.9
EA	61.00	26.00	Computer Associates Intl Inc	53.00	-3.00	-5.4
CPWR	79.81	33.87	Computware Corp	44.56	-1.38	-3.0
DCTH	58.62	19.75	Documentum	41.00	-1.12	-2.7
EFII	61.00	13.50	Electronic Arts Shopping	38.25	-1.00	-2.5
HBOC	47.12	27.00	Hbo Software	27.94	-0.06	-0.2
HNC	58.75	11.00	Hnc Software	38.63	-0.94	-2.4
INFY	98.00	3.50	Infosys Technologies Ltd	3.19	-0.13	-3.9
INTU	108.75	26.75	Intuit	61.06	-2.38	-3.8
JNPR	165.00	79.00	Juniper Networks	98.88	-3.38	-3.3
LSTC	64.19	27.00	Legato Systems Inc	47.50	-0.88	-1.8
MACR	42.00	10.37	Macromedia Inc	21.13	-1.31	-6.0
MANU	88.37	8.17	Manugistics Group Inc	8.88	-0.06	-0.6
MENT	18.00	5.63	Mentor Graphics Corp	13.00	-1.06	-7.5
MSFT	175.93	19.43	Microsoft Corp	146.25	-3.75	-2.5
NETA	47.00	25.06	Network Associates Inc	28.25	-2.00	-6.6
ORCL	54.87	20.37	Oracle Corporation	41.31	-0.37	-0.8
NOVL	48.75	8.63	Novell Inc	10.00	-0.44	-2.9
ORCS	47.25	19.38	Orbital Sciences Corp	37.75	-1.81	-3.1
PMTC	18.31	8.50	Parametric Technology Corp	10.13	-0.38	-3.5
PSFT	54.63	18.50	PeopleSoft Inc	32.31	-0.34	-1.0
PVSW	88.00	27.00	Pervasive Software Inc	29.00	-1.00	-3.3
PLAT	34.31	8.69	Platinum Technology Inc	13.75	-0.75	-5.2
RSAS	29.62	10.00	Rational Software Corp	13.87	-0.87	-5.9
SAP	88.12	39.00	SAP AG	74.75	-1.00	-1.3
SCUR	29.00	6.37	Secure Computing Corp	19.19	-4.13	-17.7
SF	88.75	10.13	Security Dynamics Tech	23.75	-4.38	-21.7
SSW	37.81	18.75	Sterling Software Inc	25.31	-4.63	-20.6
SCMC	29.00	7.88	Structural Dynamics Research	10.13	-0.94	-8.5
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SYMC	61.00	0.00	Symantec Corp	38.75	-1.00	-2.5
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VNTV	39.75	5.00	The Vantive Corp	11.75	-1.00	-8.3
TSAI	58.00	27.00	Trans Tech Arch	38.94	-4.00	-10.4
WITS	88.00	25.75	Wireless Software Corp	30.13	-9.94	-24.8
WIND	24.63	17.63	World Wide Systems Inc	21.00	-0.31	-1.4
TELECOMMUNICATIONS CARRIERS OFF -3.8%						
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AIT	49.00	30.00	Bell Atlantic Corp	61.19	-1.44	-0.7
ANDW	29.87	10.19	Andrew Corp	16.00	-0.56	-3.3
T	84.12	49.19	AT&T	69.00	-1.06	-1.5
BCE	90.83	29.63	BCE Inc	42.25	-2.19	-4.9
BEL	63.19	30.63	Bell Atlantic	57.81	-1.00	-2.0
BLS	60.00	27.75	Bell South	40.63	-0.63	-1.8
CBN	21.63	0.00	Cincinnati Bell Inc	30.13	-0.63	-2.0
CINCBL	69.19	39.63	Comcast	48.19	-1.19	-2.4
CQ	67.75	25.75	Comsat Corp	28.87	-2.81	-8.9
COX	98.43	60.62	Cox Communications Inc	69.19	-0.00	-0.3
DBT	37.12	8.31	Dobson/Sygnet Telecom Cl A	17.31	-2.38	-12.1
GTE	71.19	60.00	GTE Corp	65.00	-1.19	-1.8
MCIT	88.12	19.37	Mercer Communications	27.50	-0.00	-0.0
SPRT	88.12	88.00	Peoplesoft	0.00	-1.19	-0.6
QCOM	49.40	27.75	Qualcomm Inc	47.00	-1.00	-2.0
SBC	88.93	45.00	SBC Communications	54.13	-0.44	-0.8
SPRT	88.12	88.00	Sprint Corp	75.00	-1.00	-1.3
ACOMA	17.19	26.37	Tele Communications Intl	48.00	-5.19	-7.8
TDS	64.25	34.62	Telephone and Data Systems	60.75	-3.50	-5.5
USW	48.00	88.00	US West	48.00	-1.00	-2.0
VIA	88.00	42.00	Viacom	61.50	-1.00	-1.7
WCP	48.12	16.25	Western Communications Inc	18.00	-7.12	-10.8
WCOM	81.25	48.63	WCI WorldCom Inc	48.63	-2.81	-5.5
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ACS	51.75	22.87	Affiliated Computer Servs (H)	47.38	-0.83	-1.7
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BDYS	36.50	24.00	Bisys Group Inc. (H)	33.06	-0.00	-0.1
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CSG	29.25	10.13	Comdisco (L)	13.63	-1.19	-8.0
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CMTW	29.00	9.25	Call-Net Enterprises	0.00	-0.44	-5.2
CSCO	111.00	49.12	Cisco Systems Inc	100.13	-0.13	-5.8
ECLP	49.00	19.75	ECI Telecom	34.13	-2.19	-6.0
FORE	78.00	4.25	Fore Systems Inc	10.12	-0.00	-3.8
HRS	49.31	27.00	Harris Corp	88.00	-3.00	-7.0
GMN	57.63	49.10	Hughes Electronics -HM	87.31	-1.00	-1.7
SRCY	34.00	15.00	LM Ericsson	24.00	-2.00	-8.0
LU	126.00	88.12	Lucent Technologies	88.00	-0.25	-2.8
MANU	1.75	1.75	Madge Networks	5.44	-0.00	-1.6
NCBI	18.25	8.10	Network Computing Dev	8.00	-1.00	-10.4
NWK	88.83	6.00	Network Equipment Tech	8.83	-0.44	-4.8
NB	49.87	18.63	Newbridge Networks	28.75	-7.00	-23.7
NSB A	156.31	88.60	Nokia Corp	134.75	-1.44	-1.1

DIGEST	52-WEEK HIGH	52-WEEK LOW	NAME	FEB. 12 2 PM	1-WEEK NET CHANGE	1-WEEK PCT CHANGE
SEMICONDUCTORS, CHIPS & EQUIPMENT OFF -3.2%						
ATMT	71.00	7.87	Amkor Inc	14.00	-1.56	-10.0
AMAT	81.87	16.37	Applied Materials Inc	61.00	-1.75	-2.8
BLTN	73.81	28.25	Altera	61.00	-2.38	-3.8
BCN	49.62	5.00	Analog Devices Inc	41.00	-0.00	-0.0
ASMI	67.00	9.50	Advanced Micro Devices	11.00	-1.00	-8.3
ASMI	60.00	0.00	ASM International NV	47.00	-0.00	-0.0
AMT	45.87	21.00	Amati Communications	0.00	-0.00	-0.0
BRCM	163.00	86.00	Broadcom Corp	0.00	-0.00	-0.0
BVC	101.00	29.75	Bvr Technologies Inc	58.63	-1.38	-2.3
CTXS	66.19	29.62	Citrix Systems Inc	42.00	-2.00	-4.5
CMOS	29.87	10.50	Cmos Technology Inc	14.00	-1.75	-10.9
CMOS	88.00	24.12	Cmos Computer Corp	41.00	-12.75	-23.7
CYRIX	29.81	7.00	Cyrix Corporation	10.00	-1.00	-9.1
DELL	88.00	24.12	Dell Computer Corp	41.00	-12.75	-23.7
DSPG	88.63	48.12	Dsp Group Inc	71.00	-2.19	-2.9
EMKR	28.87	67.00	Emulex Corporation	69.44	-2.19	-3.1
ESST	69.31	88.00	Esst Inc	0.00	-0.00	-0.0
GNSS	88.75	0.50	Genesis Microchip	0.00	-0.00	-0.0
GMST	88.87	67.00	Gigabit Logic Inc	71.00	-2.00	-2.7
HPQ	69.31	88.00	Hewlett Packard	0.00	-0.00	-0.0
INTC	88.31	88.00	Intel	112.00	-1.38	-1.2
IDTI	88.00	0.00	Integrated Device Tech	0.00	-0.00	-0.0
IPCS	88.00	0.00	Ipc Systems Inc	0.00	-0.00	-0.0
KLAC	88.00	0.00	Kla Instruments	0.00	-0.00	-0.0
LSI	88.00	0.00	Lsi Logic	0.00	-0.00	-0.0
MCHP	88.00	0.00	Microchip Technology	0.00	-0.00	-0.0
MOT	88.00	0.00	Motorola	0.00	-0.00	-0.0
NSM	88.00	0.00	National Semiconductor	0.00	-0.00	-0.0
NVLS	88.00	0.00	Novellus Systems Inc	0.00	-0.00	-0.0
NVDA	88.00	0.00	Nvidia Corp	0.00	-0.00	-0.0
PMCS	88.00	0.00	Pmc-Sierra Inc	0.00	-0.00	-0.0
QLGC	88.00	0.00	Qlogic Corp	0.00	-0.00	-0.0
TXN	88.00	0.00	Texas Instruments	0.00	-0.00	-0.0
TRID	88.00	0.00	Trident Microsystems	0.00	-0.00	-0.0
VLSI	88.00	0.00	Vlsi Technology	0.00	-0.00	-0.0
XLNX	88.00	0.00	Xilinx Inc	0.00	-0.00	-0.0
COMPUTER SYSTEMS OFF -6.2%						
AAPL	62.31	19.63	Apple Computer	27.81	-0.00	-2.3
BYPR	10.25	1.87	Bay Area Systems	4.00	-1.13	-16.1
CPQ	59.75	27.63	Compaq	34.19	-1.56	-4.4
DNSC	29.81	7.00	Data Research	10.56	-1.00	-10.2
DELL	88.00	24.12	Dell Computer Corp	41.00	-12.75	-23.7
DGN	88.63	48.12	Digital Equipment	71.00	-2.19	-3.0
HWP	88.87	67.00	Hewlett Packard	69.44	-2.19	-3.1
IBM	69.31	88.00	Ibm	112.00	-1.38	-1.2
IOMG	88.75	0.00	Iomega	0.00	-0.00	-0.0
MCLD	88.00	0.00	Micro Logic Corp	0.00	-0.00	-0.0
NCR	69.75	23.00	Ncr	42.19	-1.63	-3.7
QNTM	88.87	29.00	Quantum	47.19	-4.06	-8.0
PRTN	13.25	3.50	Parallan Tech Inc	6.00	-1.00	-14.3
SMM	29.87	5.00	Solomon Computer Systems	10.13	-1.25	-10.1
SUN	29.87	7.37	Sun Microsystems	17.00	-1.00	-5.7
SMC	87.00	50.00	Sysco	72.00	-0.00	-0.0
TNDM	89.75	39.62	Tan Microcomputer	88.25	-0.19	-0.2
TDMI	5.81	2.00	Tandy Corp	3.19	-0.25	-4.7
TDMD	0.87	0.37	Tandem Systems	0.75	-0.00	-0.0
UNS	88.00	19.75	Unisys	27.13	-0.19	-0.6
INTERNET OFF -10.8%						
AMZN	109.12	18.12	Amazon.Com	106.25	-10.94	-17.0
BVSN	177.50	27.75	Bvision Online	88.38	-10.00	-7.0
AMHD	131.00	25.00	Ameritrade Corp	107.38	-0.63	-0.5
CBYD	47.00	9.75	Cbyondnet	10.75	-7.25	-41.1
CYCH	27.75	5.87	Cybercash Inc	10.38	-2.00	-15.0
EBAY	25.87	8.62	Ebay Corp	8.12	-0.38	-10.4
FNBF	48.00	6.00	E-Trade Group Inc	48.00	-6.00	-10.7
EXCT	125.00	15.00	Excite Inc	48.00	-7.00	-7.7
INFS	100.00	12.00	Infoseek	63.00	-9.00	-10.1
LCOS	106.37	11.62	Lycos Inc	106.50	-29.00	-20.0
NSCP	74.87	10.56	Netscape Communications	48.12	-4.44	-8.1
NWAT	29.12	8.75	Open Market Inc	13.81	-2.00	-13.0
OPEN	21.75	12.00	Open Text Corp	20.00	-0.00	-0.2
PSIX	88.00	7.00	Psinet	30.00	-3.75	-0.0
QKFR	0.00	0.00	Quarterdeck Corp	0.00	-0.00	-0.0
SPYR	62.75	9.63	Security Dynamics	17.75	-3.75	-17.0
SPYG	0.75	0.00	Spyglass Inc	11.00	-0.12	-0.1
YHOO	357.00	18.00	Yahoo Inc	142.13	-29.75	-10.3
STORAGE & PERIPHERALS OFF -4.0%						
ADPT	27.00	7.87	Adaptec Inc	21.00	-0.00	-2.5
APCC	80.00	25.00	American Power Conversion	88.00	-11.00	-27.2
CMAX	34.00	17.00	Canon Inc	21.31	-0.00	-3.3
DBD	49.31	10.12	Diebold Inc	88.63	-2.00	-0.1
EMC	88.63	88.00	Electronic Retail Co	48.00	-4.25	-0.1
EMC	100.67	34.75	EMC	63.00	-3.00	-3.6
IOMG	10.19	2.63	Iomega	4.00	-0.56	-0.0
LSI	88.19	48.00	Lyondell International Comp	104.00	-7.56	-7.0
MSTR	49.75	20.81	Quantum	21.00	-0.81	-3.1
QLGC	44.25	10.12	Seagate Technology	34.00	-1.00	-4.0
STK	20.12	10.12	Storage Technology	17.87	-0.44	-1.2
TSA	88.12	10.00	Tidewater	25.19	-1.00	-3.9
XIRC	139.06	10.00	Xircom	48.00	-0.10	-0.2

KEY, **(H)** - New annual high reached in period
(L) - New annual low reached in period

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Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com

3COM CORP 82
3M CO 82
ABBOTT LABORATORIES 82
ACCENTURE 82
ACCESS GRAPHICS 82
ACCLAIM ENTERTAINMENT 82
ACER AMERICA CORP 82
ACTIVISION 82
ADAPTEC 82
ADC TELECOMMUNICATIONS 82
ADOBE SYSTEMS 82
ADVANCED MICRO DEVICES 82
AETNA 82
AFFILIATED COMPUTER SERVICES 82
AGILENT TECHNOLOGIES 82
AIR FRANCE 82
AIRBORNE EXPRESS 82
AKAMAI TECHNOLOGIES 82
ALCATEL USA 82
ALCOA 82
ALLEGHENY TECHNOLOGIES 82
ALLSTATE 82
ALTERA 82
AMAZON.COM 82
AMD 82
AMERICA ONLINE 82
AMERICAN AIRLINES 82
AMERICAN EXPRESS 82
AMERICAN GREETINGS 82
AMERICAN HOME PRODUCTS 82
AMERICAN INTERNATIONAL GROUP 82
AMERICAN MANAGEMENT SYSTEMS 82
AMERICAN PRESIDENT LINES 82
AMERICAN STANDARD 82
AMERICAN TECHNICAL PUBLISHERS 82
AMERICAN TRANS AIR 82
AMERICAN TRANSTECH 82
AMERICAN WATER WORKS 82
AMERITECH 82
AMGEN 82
AMKOR TECHNOLOGY 82
AMP 82
AMR 82
ANADARKO PETROLEUM 82
ANALOG DEVICES 82
ANDERSEN CONSULTING 82
ANHEUSER-BUSCH 82
AON 82
APPLE COMPUTER 82
APPLIED MATERIALS 82
ARAMARK 82
ARCHER DANIELS MIDLAND 82
ARCHSTONE COMMUNITIES TRUST 82
ARGOSY GAMING 82
ARMSTRONG WORLD INDUSTRIES 82
ARROW ELECTRONICS 82
ARTHUR ANDERSEN 82
ASCENTIAL 82
ASHLAND 82
ASPECT TELECOMMUNICATIONS 82
ASSOCIATED GROCERS 82
ASSOCIATES FIRST CAPITAL 82
ASTEC 82
ASTRAZENECA 82
AT&T 82
AT&T WIRELESS 82
ATLANTIC RICHFIELD 82
AUTOMATIC DATA PROCESSING 82
AUTOMOTIVE RESOURCES INTERNATIONAL 82
AVALONBAY COMMUNITIES 82
AVERY DENNISON 82
AVIS RENT A CAR SYSTEM 82
AVNET 82
AVON PRODUCTS 82
AXA FINANCIAL 82
BAKER HUGHES 82
BALL 82
BANC ONE 82
BANK OF AMERICA 82
BANK OF NEW YORK 82
BANKAMERICA 82
BANKBOSTON 82
BARNES & NOBLE 82
BARRICK GOLD 82
BAUSCH & LOMB 82
BAXTER INTERNATIONAL 82
BB&T 82
BEAR STEARNS 82
BECTON DICKINSON 82
BED BATH & BEYOND 82
BELL ATLANTIC 82
BELLSOUTH 82
BEMIS 82
BERGEN BRUNSWIG 82
BERKSHIRE HATHAWAY 82
BEST BUY 82
BETHLEHEM STEEL 82
BIOGEN 82
BIOMET 82
BLACK & DECKER 82
BLOCKBUSTER 82
BMC SOFTWARE 82
BOEING 82
BOISE CASCADE 82
BORDERS GROUP 82
BORG-WARNER AUTOMOTIVE 82
BOSTON SCIENTIFIC 82
BRIGGS & STRATTON 82
BRINKER INTERNATIONAL 82
BRISTOL-MYERS SQUIBB 82
BROADCOM 82
BROADVISION 82
BROCADE COMMUNICATIONS SYSTEMS 82
BROWN & BROWN 82
BROWN-FORMAN 82
BRUNSWICK 82
BUCKEYE TECHNOLOGIES 82
BURLINGTON COAT FACTORY 82
BURLINGTON NORTHERN SANTA FE 82
BURLINGTON RESOURCES 82
CABLE & WIRELESS 82
CABLETRON SYSTEMS 82
CABOT 82
CACI INTERNATIONAL 82
CADENCE DESIGN SYSTEMS 82
CALPINE 82
CAMPBELL SOUP 82
CAPITAL ONE FINANCIAL 82
CARDINAL HEALTH 82
CARLISLE 82
CARNIVAL 82
CATERPILLAR 82
CBS 82
CELESTICA 82
CENDANT 82
CENTEX 82
CENTURYTEL 82
CERIDIAN 82
CHARLES SCHWAB 82
CHARLES RIVER ASSOCIATES 82
CHARLES RIVER LABORATORIES 82
CHARLOTTE RUSSE HOLDING 82
CHARTER ONE FINANCIAL 82
CHECKFREE 82
CHEVRON 82
CHIRON 82
CHRYSLER 82
CIBER 82
CIENA 82
CIGNA 82
CINCINNATI FINANCIAL 82
CINERGY 82
CIRCUIT CITY STORES 82
CISCO SYSTEMS 82
CITIGROUP 82
CITRIX SYSTEMS 82
CLAIRE'S STORES 82
CLAYTON HOMES 82
CLOROX 82
CMGI 82
CMP PUBLICATIONS 82
COCA-COLA 82
COCA-COLA ENTERPRISES 82
COGNIZANT TECHNOLOGY SOLUTIONS 82
COMAIR 82
COMDISCO 82
COMERICA 82
COMPAQ COMPUTER CORP 82
COMPUSA 82
COMPUTER ASSOCIATES INTERNATIONAL 82
COMPUTER MANAGEMENT 82
COMPUTER SCIENCES 82
COMPUTER SCIENCES CORP 82
CONCORDE SOLUTIONS 82
CONNOR 82
CONSECO 82
CONSOLIDATED EDISON 82
CONSOLIDATED FREIGHTWAYS 82
CONSTAR INTERNATIONAL 82
CONSTELLATION BRANDS 82
CONVERGYS 82
COOPER INDUSTRIES 82
COORS (ADOLPH) 82
COPART 82
CORNING 82
COSTCO WHOLESALE 82
COUNTRYWIDE HOME LOANS 82
COX ENTERPRISES 82
CRANE 82
CROWN CORK & SEAL 82
CSX 82
CUMMINS ENGINE 82
CYPRESS SEMICONDUCTOR 82
CYTEC INDUSTRIES 82
DANA 82
DANAHER 82
DARDEN RESTAURANTS 82
DATA GENERAL 82
DATA GENERAL CORP 82
DATA GENERAL/EMC 82
DATA RETURN 82
DATASTREAM SYSTEMS 82
DAYTON HUDSON 82
DEAN FOODS 82
DEERE 82
DELL COMPUTER CORP 82
DELPHI AUTOMOTIVE SYSTEMS 82
DELTA AIR LINES 82
DELUXE 82
DENTSPLY INTERNATIONAL 82
DEVON ENERGY 82
DIAMOND SHAMROCK 82
DIEBOLD 82
DIGITAL EQUIPMENT 82
DILLARD'S 82
DIMON 82
DOLE FOOD 82
DOMINION RESOURCES 82
DONNELLEY (R.R.) & SONS 82
DOVER 82
DOW CHEMICAL 82
DOW JONES 82
DQE 82
DRESSER INDUSTRIES 82
DST SYSTEMS 82
DTE ENERGY 82
DU PONT (E.I.) DE NEMOURS 82
DUKE ENERGY 82
DUN & BRADSTREET 82
EASTMAN CHEMICAL 82
EASTMAN KODAK 82
EATON 82
EBAY 82
ECHOSTAR COMMUNICATIONS 82
ECOLAB 82
EDISON INTERNATIONAL 82
EDS 82
EG&G 82
EL PASO ENERGY 82
ELECTRIC BOAT 82
ELECTRONIC ARTS 82
ELECTRONIC DATA SYSTEMS 82
ELECTRONIC SYSTEMS CENTER 82
ELI LILLY 82
EMC 82
EMERSON ELECTRIC 82
ENRON 82
ENSERCH 82
ENTERGY 82
ENTERPRISE RENT-A-CAR 82
EOG RESOURCES 82
EQUIFAX 82
EQUITABLE COMPANIES 82
EQUITY OFFICE PROPERTIES TRUST 82
EQUITY RESIDENTIAL PROPERTIES TRUST 82
ERICSSON 82
ESTEE LAUDER 82
EXABYTE 82
EXCEL 82
EXELON 82
EXPEDITORS INTERNATIONAL OF WASHINGTON 82
EXPRESS SCRIPTS 82
EXXON 82
FAIRCHILD SEMICONDUCTOR 82
FAMILY DOLLAR STORES 82
FANNIE MAE 82
FEDERAL EXPRESS 82
FEDERATED DEPARTMENT STORES 82
FILENET 82
FINISH LINE 82
FIRST DATA 82
FIRST SECURITY 82
FIRST UNION 82
FIRSTAR 82
FISERV 82
FLEETBOSTON FINANCIAL 82
FLEMING 82
FLIGHTSAFETY INTERNATIONAL 82
FLUOR 82
FMC 82
FOOT LOCKER 82
FORD MOTOR 82
FOREST LABORATORIES 82
FORTUNE BRANDS 82
FOSTER WHEELER 82
FPL GROUP 82
FRANKLIN RESOURCES 82
FREEPORT-MCMORAN COPPER & GOLD 82
FRITO-LAY 82
FRONTIER 82
FRUIT OF THE LOOM 82
FUJITSU 82
FULLER (H.B.) 82
GALILEO INTERNATIONAL 82
GANNETT 82
GAP 82
GARTNER GROUP 82
GATEWAY 2000 82
GENCORP 82
GENERAL DYNAMICS 82
GENERAL ELECTRIC 82
GENERAL MILLS 82
GENERAL MOTORS 82
GENUINE PARTS 82
GEORGIA-PACIFIC 82
GILLETTE 82
GLOBAL MARINE 82
GOLDEN WEST FINANCIAL 82
GOODRICH (B.F.) 82
GOODYEAR TIRE & RUBBER 82
GRACE (W.R.) 82
GRAINGER (W.W.) 82
GREAT ATLANTIC & PACIFIC TEA 82
GREAT LAKES CHEMICAL 82
GREAT PLAINS SOFTWARE 82
GREENPOINT FINANCIAL 82
GTE 82
GUIDANT 82
HALLIBURTON 82
HANCOCK FABRICS 82
HARCOURT GENERAL 82
HARLEY-DAVIDSON 82
HARRAH'S ENTERTAINMENT 82
HARRIS 82
HARTFORD FIRE INSURANCE 82
HASBRO 82
HCA-HEALTHCARE CORP. 82
HEALTH MANAGEMENT ASSOCIATES 82
HEALTHSOUTH 82
HEARST 82
HEINZ (H.J.) 82
HELLER FINANCIAL 82
HERCULES 82
HERSHEY FOODS 82
HEWLETT-PACKARD 82
HILTON HOTELS 82
HITACHI 82
HNC SOFTWARE 82
HOECHST MARION ROUSSEL 82
HOME DEPOT 82
HONEYWELL INTERNATIONAL 82
HORMEL FOODS 82
HOUSEHOLD INTERNATIONAL 82
HUBBELL 82
HUGHES ELECTRONICS 82
HUMANA 82
HUNTINGTON BANCSHARES 82
HYATT 82
IBM 82
IDEC PHARMACEUTICALS 82
IDEX 82
IKON OFFICE SOLUTIONS 82
ILLINOIS TOOL WORKS 82
IMATION 82
IMC GLOBAL 82
IMPATH 82
IMPERIAL CHEMICAL INDUSTRIES 82
INCO 82
INDEPENDENT INSURANCE GROUP 82
INFINITY BROADCASTING 82
INFORMIX 82
INGERSOLL-RAND 82
INGRAM MICRO 82
INKTOMI 82
INTEL 82
INTERGRAPH 82
INTERLEAF 82
INTERNATIONAL BUSINESS MACHINES 82
INTERNATIONAL DATA GROUP 82
INTERNATIONAL FLAVORS & FRAGRANCES 82
INTERNATIONAL GAME TECHNOLOGY 82
INTERNATIONAL PAPER 82
INTERNET SECURITY SYSTEMS 82
INTUIT 82
IOMEGA 82
IRON MOUNTAIN 82
ITT EDUCATIONAL SERVICES 82
ITT INDUSTRIES 82
J.C. PENNEY 82
J.D. EDWARDS & CO 82
J.P. MORGAN & CO 82
J.D. POWER AND ASSOCIATES 82
JABIL CIRCUIT 82
JACOBS ENGINEERING GROUP 82
JANUS CAPITAL 82
JEFFERSON-PILOT 82
JEFFERSONVILLE BANCORP 82
JITNEY-JUNGLE STORES OF AMERICA 82
JOHN HANCOCK MUTUAL LIFE INSURANCE 82
JOHNSON & JOHNSON 82
JOHNSON CONTROLS 82
JONES APPAREL GROUP 82
JONES INTERCABLE 82
JOSTENS 82
JUNIPER NETWORKS 82
KAISER ALUMINUM 82
KANSAS CITY SOUTHERN INDUSTRIES 82
KAUFMAN & BROAD HOME 82
KAUFMAN & BROAD HOME CORP 82
KB HOME 82
KELLOGG 82
KELLY SERVICES 82
KENDALL 82
KEY 82
KEYCORP 82
KIDDE 82
KIMBERLY-CLARK 82
KINDER MORGAN 82
KLA-TENCOR 82
KMART 82
KNIGHT-RIDDER 82
KOHL'S 82
KROGER 82
LABORATORY CORP. OF AMERICA 82
LAM RESEARCH 82
LANDMARK SYSTEMS CORP 82
LEHMAN BROTHERS 82
LEPUS GRAPHICS 82
LEVEL 8 SYSTEMS 82
LEVI STRAUSS ASSOCIATES 82
LEXMARK INTERNATIONAL 82
LIBERTY MEDIA 82
LIBERTY MUTUAL INSURANCE 82
LIFEPOINT HOSPITALS 82
LILLY (ELI) 82
LIMITED 82
LINCOLN NATIONAL 82
LINEAR TECHNOLOGY 82
LITTON INDUSTRIES 82
LIZ CLAIBORNE 82
LOCKHEED MARTIN 82
LOEWS 82
LONE STAR INDUSTRIES 82
LONE STAR TECHNOLOGIES 82
LONGS DRUG STORES 82
LOUISIANA-PACIFIC 82
LOWE'S 82
LSI LOGIC 82
LTV 82
LUBRIZOL 82
LUCENT TECHNOLOGIES 82
LYONDELL PETROCHEMICAL 82
MACROMEDIA 82
MAGELLAN HEALTH SERVICES 82
MALLINCKRODT 82
MANOR CARE 82
MANPOWER 82
MARATHON OIL 82
MARRIOTT INTERNATIONAL 82
MARSH & MCLENNAN 82
MARTIN MARIETTA MATERIALS 82
MASCO 82
MATTEL 82
MAXIM INTEGRATED PRODUCTS 82
MAXTOR 82
MAYTAG 82
MBIA 82
MBNA 82
MCCAW INTERNATIONAL 82
MCDERMOTT INTERNATIONAL 82
MCDONALD'S 82
MCDONNELL DOUGLAS 82
MCGRAW-HILL 82
MCI WORLDCOM 82
MCKESSON HBOC 82
MEDIA GENERAL 82
MEDIAONE GROUP 82
MEDIMMUNE 82
MEDTRONIC 82
MELLON BANK 82
MENTOR GRAPHICS 82
MERCANTILE STORES 82
MERCK 82
MERRILL LYNCH 82
MET-PRO 82
METRICOM 82
MGIC INVESTMENT 82
MICHIGAN NATIONAL BANK 82
MICRO FOCUS 82
MICRON ELECTRONICS 82
MICROSOFT 82
MICROSTRATEGY 82
MIDDLE ATLANTIC 82
MIDWAY GAMES 82
MILACRON 82
MILLENNIUM PHARMACEUTICALS 82
MILLER (HERMAN) 82
MILLIPORE 82
MINNESOTA MINING & MANUFACTURING 82
MIPS TECHNOLOGIES 82
MITCHELL ENERGY & DEVELOPMENT 82
MITRE 82
MOBIL 82
MODINE MANUFACTURING 82
MOLEX 82
MONSANTO 82
MOODY'S 82
MORGAN STANLEY DEAN WITTER 82
MORTON INTERNATIONAL 82
MOTOROLA 82
MSC.SOFTWARE 82
MURPHY OIL 82
NABISCO GROUP HOLDINGS 82
NABORS INDUSTRIES 82
NALCO CHEMICAL 82
NATIONAL CITY 82
NATIONAL COMPUTER SYSTEMS 82
NATIONAL DATA 82
NATIONAL FUEL GAS 82
NATIONAL INSTRUMENTS 82
NATIONAL SEMICONDUCTOR 82
NATIONAL SERVICE INDUSTRIES 82
NATIONAL STEEL 82
NATIONAL WESTMINSTER BANK 82
NATIONWIDE 82
NAVISTAR INTERNATIONAL 82
NCR 82
NEIMAN MARCUS GROUP 82
NETSCAPE COMMUNICATIONS 82
NETWORK APPLIANCE 82
NETWORK ASSOCIATES 82
NEW YORK TIMES 82
NEWELL 82
NEWMONT MINING 82
NEWPORT NEWS SHIPBUILDING 82
NEXTEL COMMUNICATIONS 82
NIKE 82
NORDSTROM 82
NORFOLK SOUTHERN 82
NORTEL 82
NORTH AMERICAN AVIATION 82
NORTHERN TRUST 82
NORTHROP GRUMMAN 82
NOVELL 82
NOVELLUS SYSTEMS 82
NUCOR 82
NVIDIA 82
OCCIDENTAL PETROLEUM 82
OCEAN ENERGY 82
OFFICE DEPOT 82
OFFICEMAX 82
OGDEN 82
OHIO CASUALTY 82
OLIN 82
OMNICARE 82
OMNICOM GROUP 82
ONEOK 82
ORACLE 82
OREGON STEEL MILLS 82
OSHKOSH TRUCK 82
OUTBACK STEAKHOUSE 82
OWENS & MINOR 82
OWENS-CORNING 82
OWENS-ILLINOIS 82
PACCAR 82
PACIFIC GAS & ELECTRIC 82
PACIFICARE HEALTH SYSTEMS 82
PACKAGING CORP. OF AMERICA 82
PACKARD BIOSCIENCE 82
PACTIV 82
PALL 82
PANAMSAT 82
PANAMSAT 82
PARAMETRIC TECHNOLOGY 82
PARKER HANNIFIN 82
PATHMARK STORES 82
PATTERSON DENTAL 82
PAYCHEX 82
PECO ENERGY 82
PENNEY (J.C.) 82
PENNZOIL-QUAKER STATE 82
PEOPLESOFT 82
PEPSI-COLA BOTTLING GROUP 82
PEPSICO 82
PERFORMANCE COMPUTING 82
PERKINELMER 82
PETSMART 82
PFIZER 82
PG&E 82
PHARMACIA & UPJOHN 82
PHELPS DODGE 82
PHILIP MORRIS 82
PHILLIPS PETROLEUM 82
PHOENIX TECHNOLOGIES 82
PHOTRONICS 82
PINNACLE WEST CAPITAL 82
PIONEER-STANDARD ELECTRONICS 82
PITNEY BOWES 82
PITTSTON BRINK'S GROUP 82
PITTSTON COAL GROUP 82
PLACER DOME 82
PLANAR SYSTEMS 82
PLANTRONICS 82
PLEXUS 82
PMC-SIERRA 82
PNC BANK 82
POLAROID 82
POTLATCH 82
PPG INDUSTRIES 82
PPL RESOURCES 82
PRAXAIR 82
PRECISION CASTPARTS 82
PRICE COMPANY 82
PRICE WATERHOUSE COOPERS 82
PRICE/COSTCO 82
PROCTER & GAMBLE 82
PROGRESSIVE 82
PROTECTIVE LIFE 82
PROVIDENT COMPANIES 82
PROVIDIAN FINANCIAL 82
PRUDENTIAL INSURANCE 82
PUBLIC SERVICE ENTERPRISE GROUP 82
PUGET SOUND ENERGY 82
PULTE HOMES 82
QLOGIC 82
QUAKER OATS 82
QUALCOMM 82
QUANTA COMPUTER 82
QUANTUM 82
QUEST DIAGNOSTICS 82
QUESTAR 82
QUICKEN LOANS 82
QUINTILES TRANSNATIONAL 82
QWEST COMMUNICATIONS INTERNATIONAL 82
RADIAN 82
RADIOSHACK 82
RALSTON PURINA 82
RAMBUS 82
RAYMOND JAMES FINANCIAL 82
RAYONIER 82
RAYTHEON 82
READER'S DIGEST ASSOCIATION 82
RED HAT SOFTWARE 82
REED ELSEVIER 82
REGENCY CENTERS 82
REMEDY 82
RENAISSANCE WORLDWIDE 82
REPUBLIC NEW YORK 82
RESMED 82
REUTERS 82
REYNOLDS & REYNOLDS 82
REYNOLDS METALS 82
RITE AID 82
ROADWAY EXPRESS 82
ROBERT HALF INTERNATIONAL 82
ROCKWELL AUTOMATION 82
ROCKWELL COLLINS 82
ROHM & HAAS 82
ROLLINS 82
ROSS STORES 82
ROWAN 82
RPM 82
RUBBERMAID 82
RYDER SYSTEM 82
RYLAND GROUP 82
SABRE GROUP HOLDINGS 82
SAFECO 82
SAFEGUARD SCIENTIFICS 82
SAFEWAY 82
SAGE 82
SAKS 82
SANDISK 82
SANMINA 82
SANTA FE PACIFIC GOLD 82
SAPIENT 82
SARA LEE 82
SAS INSTITUTE 82
SBC COMMUNICATIONS 82
SCANA 82
SCHERING-PLOUGH 82
SCHLUMBERGER 82
SCHNITZER STEEL INDUSTRIES 82
SCHOLASTIC 82
SCHWAB (CHARLES) 82
SCI SYSTEMS 82
SCIENTIFIC-ATLANTA 82
SCOTT PAPER 82
SEAGATE TECHNOLOGY 82
SEARS, ROEBUCK AND 82
SEI INVESTMENTS 82
SEMPRA ENERGY 82
SEMTECH 82
SERVICE CORP. INTERNATIONAL 82
SERVICE MERCHANDISE 82
SHAW INDUSTRIES 82
SHERWIN-WILLIAMS 82
SIEBEL SYSTEMS 82
SIEMENS 82
SIERRA PACIFIC RESOURCES 82
SIGMA-ALDRICH 82
SILICON GRAPHICS 82
SILICON VALLEY GROUP 82
SIMPLOT (J.R.) 82
SKYLINE 82
SMITH INTERNATIONAL 82
SMITH'S FOOD & DRUG CENTERS 82
SMITHFIELD FOODS 82
SNAP-ON TOOLS 82
SOLECTRON 82
SONAT 82
SONOCO PRODUCTS 82
SOUTHERN 82
SOUTHERN PACIFIC 82
SOUTHTRUST 82
SOUTHWEST AIRLINES 82
SOUTHWEST GAS 82
SOUTHWEST SECURITIES GROUP 82
SOUTHWESTERN BELL 82
SOUTHWESTERN ENERGY PRODUCTION 82
SPARTECH 82
SPECIALTY EQUIPMENT COMPANIES 82
SPECTRASITE COMMUNICATIONS 82
SPIEGEL 82
SPRINT 82
SPX 82
ST. JUDE MEDICAL 82
ST. PAUL COMPANIES 82
STANDARD MICROSYSTEMS 82
STANDARD PACIFIC 82
STANDARD REGISTER 82
STANLEY WORKS 82
STAPLES 82
STARBUCKS 82
STARWOOD HOTELS & RESORTS WORLDWIDE 82
STATE STREET 82
STATE STREET BOSTON 82
STEELCASE 82
STERLING SOFTWARE 82
STEWART & STEVENSON SERVICES 82
STILWELL FINANCIAL 82
STONE & WEBSTER 82
STORAGE TECHNOLOGY 82
STRYKER 82
SUBARU OF AMERICA 82
SUN MICROSYSTEMS 82
SUNGARD DATA SYSTEMS 82
SUNOCO 82
SUNTRUST BANKS 82
SUPERIOR ENERGY SERVICES 82
SUPERMARKETS ONLINE 82
SUPERVALU 82
SYBASE 82
SYMANTEC 82
SYMBOL TECHNOLOGIES 82
SYNOPSYS 82
SYNOVUS FINANCIAL 82
SYNTEL 82
SYSCO 82
SYSTEMS & COMPUTER TECHNOLOGY 82
SYSTEMS INTEGRATION SPECIALISTS 82
TALBOTS 82
TALLY SYSTEMS 82
TANDY 82
TCBY ENTERPRISES 82
TECH DATA 82
TECHNE 82
TECHNITROL 82
TECO ENERGY 82
TEKELEC 82
TELEFLEX 82
TELEPHONE & DATA SYSTEMS 82
TELEPHONE AND DATA SYSTEMS 82
TELETECH HOLDINGS 82
TELLABS 82
TEMPLE-INLAND 82
TENET HEALTHCARE 82
TERADYNE 82
TEXACO 82
TEXAS INDUSTRIES 82
TEXAS INSTRUMENTS 82
TEXTRON 82
THERMO ELECTRON 82
THOMAS & BETTS 82
THOMAS INDUSTRIES 82
TIDEWATER 82
TIFFANY 82
TIMBERLAND 82
TIME WARNER 82
TIMKEN 82
TJX COMPANIES 82
TOLL BROTHERS 82
TOOTSIE ROLL INDUSTRIES 82
TORCHMARK 82
TOSCO 82
TOTAL SYSTEM SERVICES 82
TOYOTA MOTOR CREDIT 82
TOYOTA MOTOR SALES U.S.A. 82
TRANSOCEAN OFFSHORE 82
TRANSWORLD HOME HEALTHCARE 82
TRAVELERS PROPERTY CASUALTY 82
TRIAD HOSPITALS 82
TRIBUNE 82
TRICON GLOBAL RESTAURANTS 82
TRIGON HEALTHCARE 82
TRINITY INDUSTRIES 82
TRITON ENERGY 82
TRW 82
TUPPERWARE 82
TWA 82
TYCO INTERNATIONAL 82
TYSON FOODS 82
UAL 82
UGI 82
ULTRAMAR DIAMOND SHAMROCK 82
UNICOM 82
UNION CAMP 82
UNION CARBIDE 82
UNION PACIFIC 82
UNION PACIFIC RESOURCES GROUP 82
UNION PLANTERS 82
UNISOURCE WORLDWIDE 82
UNISYS 82
UNITED HEALTHCARE 82
UNITED PARCEL SERVICE 82
UNITED RENTALS 82
UNITED STATES CELLULAR 82
UNITED STATES STEEL 82
UNITED TECHNOLOGIES 82
UNITEDHEALTH GROUP 82
UNIVERSAL CORP. 82
UNIVERSAL FOREST PRODUCTS 82
UNOCAL 82
UNUMPROVIDENT 82
US AIRWAYS GROUP 82
US BANCORP 82
US FOODSERVICE 82
USA NETWORKS 82
USAIRWAYS GROUP 82
USF&G 82
USG 82
UTILICORP UNITED 82
VALERO ENERGY 82
VALLEY NATIONAL BANCORP 82
VALMONT INDUSTRIES 82
VALSPAR 82
VARIAN ASSOCIATES 82
VARIAN MEDICAL SYSTEMS 82
VECTREN 82
VENCOR 82
VERIFONE 82
VERITAS SOFTWARE 82
VERITY 82
VERTEX PHARMACEUTICALS 82
VF 82
VIACOM 82
VISHAY INTERTECHNOLOGY 82
VISTEON 82
VITESSE SEMICONDUCTOR 82
VLSI TECHNOLOGY 82
VOLT INFORMATION SCIENCES 82
VULCAN MATERIALS 82
WACHOVIA 82
WAL-MART STORES 82
WALGREEN 82
WARNACO GROUP 82
WASHINGTON GAS LIGHT 82
WASHINGTON MUTUAL 82
WASHINGTON POST 82
WASTE MANAGEMENT 82
WATERS 82
WATSON PHARMACEUTICALS 82
WATSON WYATT & COMPANY HOLDINGS 82
WEATHERFORD INTERNATIONAL 82
WEBMETHODS 82
WEBTRENDS 82
WELLPOINT HEALTH NETWORKS 82
WELLS FARGO 82
WESTAMERICA BANCORPORATION 82
WESTCOAST ENERGY 82
WESTERN DIGITAL 82
WESTERN GAS RESOURCES 82
WESTERN RESOURCES 82
WESTVACO 82
WEYERHAEUSER 82
WHIRLPOOL 82
WHITMAN 82
WHITMAN EDUCATION GROUP 82
WHITMAN HART 82
WHITNEY NATIONAL BANK 82
WHITTMAN-HART 82
WILEY (JOHN) & SONS 82
WILLAMETTE INDUSTRIES 82
WILLIAMS 82
WILLIAMS COMMUNICATIONS GROUP 82
WILLIAMS-SONOMA 82
WILMINGTON TRUST 82
WIND RIVER SYSTEMS 82
WINN-DIXIE STORES 82
WISCONSIN ENERGY 82
WORLDTALK 82
WORTHINGTON INDUSTRIES 82
WRIGLEY (WM.) JR. 82
WYETH 82
XEROX 82
XILINX 82
XTRA 82
YAHOO 82
YALE NEW HAVEN MEDICAL CENTER 82
YAMAHA CORPORATION OF AMERICA 82
YANKEE CANDLE 82
YORK INTERNATIONAL 82
ZIFF DAVIS 82
ZIMMER HOLDINGS 82
ZIONS BANCORPORATION 82

Continued from page 1

Retailer Commits to Linux

The company has a strong Unix history and has been using Linux on development workstations for about a year.

Burlington is unusual, however. It is known as a company comfortable with technical risk-taking, having embraced thin clients, Java and oow Linux. Many other retailers are only beginning to think about those technologies.

"It may be that the CIO at Burlington Coat is a few years ahead of the game," said Brian Hume, president of Atlaota-based retail information technology consultancy Martec International Inc. "But be's been successful at it."

A more typical Linux adopter would be DNA Plant Technologies Corp., a biotechnology company in Oakland, Calif., with about 80 users. The company plans to implement Linux, which it can easily accommodate, said information systems manager Rob Narberes. The company already uses a wide range of platforms, including Macintosh as the main client system because of its popularity in the sciences. "I would rather choose to have my leg bitten off than to buy NT," Narberes said.

When most retailers have upgraded their in-store operating systems in the past several years, they have overwhelmingly picked Windows NT, said Donald Bellomy, an analyst at Aberdeen Group Inc. in Boston. It's retailers such as Burlington, which run very few third-party applications, that can choose more obscure platforms, he added.

Despite Burlington's adventurous reputation, Aberdeen analyst Sandra Potter said such a large company's willingness to base a substantial amount of its operations on Linux could send a strong signal that it's a low-cost optioo that other companies should consider. "I think it might turn out to be groundbreaking," she said.

Making the change to Linux from the current store systems won't be as painful as it would be from a Windows environment. Because Burlingtoo serves many applications to its stores using Internet technology over a new frame-relay network, Prince said, those applications won't be affected by the change to Linux.

And as is generally the case in the retail sector, the discounter's current in-store systems are old. They're based on Sun Microsystems Inc. SPARC-based machines running SunOS 4.1. The clients for back-office and inventory applications are either radio-frequency handheld scanners or dumb terminals. The point-of-sale systems, which won't change, are old PCs tuooing MS-DOS.

Prince said he will replace the dumb terminals with Pentium-based PCs but hasn't yet decided whether to scrap the SPARC machines or install Linux oo them. The company will use leading Linux distributor Red Hat Software Inc.'s Linux version.

In all, the hardware will cost $1.15 million to $1.8 million, depending on the power of the machines, Prince said. The cost of Linux itself, be said, will be only a few hundred dollars. Thus, Burlington will save thousands of dollars in each store by not buying a commercial operating system. ◗

Linux Who? Most IT Folks Don't Know It

For all the attention that vendors and the media are showering on Linux, the inexpensive – and often free – version of Unix still is an unknown quantity among mainstream corporate IT managers, a new *Computerworld* survey has revealed.

The survey of 154 IT managers found that Linux has a long way to go to win them over (see chart). Few companies – just 9% – are using Linux, while another 5% are considering its use. But 55% aren't even familiar with Linux.

IT managers often are the last to know when Linux has been installed by rank-and-file engineers at a company, analysts and Linux enthusiasts said, suggesting that actual Linux deployment is larger than the survey indicated. But because the managers make the spending and strategic decisions, they will need to embrace Linux before it can become a standard.

The survey showed that if a company such as IBM or Microsoft Corp. were to support Linux, IT managers would be more open to it.

A typical Linux-averse example is Wells Fargo & Co., a commercial bank based in San Francisco. With year 2000 problems to worry about, the bank is clamping down on the use of shareware, said Tim Keefe, a vice president responsible for LANs and desktop systems.

The bank knows how to deal with blue-chip operating systems such as Windows NT and NetWare, he said. But shareware – with little or no support – could pose a risk, he said. The company has sought to root out unauthorized shareware installations, including at least one Linux implementation.

Regardless, major vendors are beginning to line up behind Linux, and the software has achieved widespread adoption outside of corporations, said Dan Kusnetsky, an analyst at International Data Corp. (IDC) in Framingham, Mass.

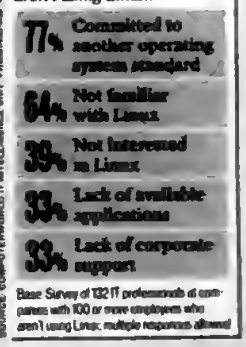
IDC's research has shown the software to be most popular with small, thrifty Internet service providers; scientists; academic institutions; companies that provide applications over the Internet, and corporate departments that have been told to build Internet applications but haven't been given funding.

Kusnetsky said that because most universities use Linux as a teaching tool, he expects that Linux eventually will become a mainstream operating system as traditional support services start to emerge for it. ◗

– *David Orenstein*

Count the Ways

Reasons why companies aren't using Linux:



Base: Survey of 132 IT professionals at companies with 100 or more employees who aren't using Linux; multiple responses allowed

SOURCE: COMPUTERWORLD IT PANEL, JUNE 1998 FRAMINGHAM, MASS.

Continued from page 1

Hitachi Skyline

fer up to 280 MIPS per processor and will support up to 16 processors in a single enclosure — allowing single-system performance of up to 3,200 MIPS, sources briefed on the announcement said.

But users will have to wait until the first quarter of 2000 for those systems to ship. A smaller, 12-processor version will be available in this year's third quarter, the sources added.

By comparison, a top-of-the-line Generation 5 mainframe from IBM offers less than 1,100 MIPS in a 10-processor configuration, and Amdahl Corp.'s Millennium servers top out at 1,075 MIPS. However, IBM is expected to ship a 12-way system in this year's third quarter that should offer between 1,500 and 1,700 MIPS of processing power, analysts said.

Demand for that kind of scalability, though limited, still exists in large application environments, analysts said. For instance, First Security Corp., a financial services firm in Salt Lake City, is using a high-end Hitachi Skyline system to host its main production applications and a smaller IBM CMOS system for maoy of its smaller financial applications.

First Security is looking forward to the increased scalability, said Mike Lopez, project and team leader for hardware. "We have always felt that large engines work well for our main suite of production applications" because they can handle applicatioo growth, be said.

Like current Skyline models, the new system is based on HDS's Advanced CMOS-ECL chip technology. The hybrid approach is an attempt by Hitacbi to take advantage of the lower power consumption and space savings of the newer CMOS technology while retaining the speed advantage of emitter-coupled logic (ECL) technology on which older mainframes were based.

The new system should help Hitachi grab some much-needed market attention, analysts said. Once a significant rival of IBM in mainframe MIPS, the company has gotten hammered lately. In the fourth quarter of last year, for instance, Hitachi sold just over 20,000 MIPS, compared with the 45,000 it sold in the same period a year earlier, said David Floyer, an analyst at Impact IT, a mainframe consultancy in Mountain View, Calif.

And although Hitachi had a 21% market share in 1997, that had shrunk to just 14% last year, compared with IBM's 76% and Amdahl's 10%, said Carl Greiner, an analyst at Meta Group Inc. in Stamford, Conn.

"IBM has been going after them in a big way. They have been very aggressive with prices and have been offering better financing deals" on mainframes than Hitachi, Floyer said. ◗

JUST THE FACTS

Hitachi's Trinium

- **Processors supported: Up to 16 (only a 12-processor version will be available this year).**
- **Uniprocessor performance: Up to 280 MIPS**
- **Up to 640 bytes of memory**
- **Fibre Channel support**
- **Lets users cluster partitions in parallel sysplex configuration**
- **Cryptographic coprocessor for enhanced security**

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Web Critics' Picks

The 139-member Online Film Critics Society — a global association of film critics for webzines and online services — recently named its 1998 award winners:

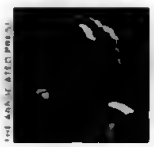
Best Picture: *Saving Private Ryan*

Best Director: Steven Spielberg, *Saving Private Ryan*

Best Actor: Sir Ian McKellen, *Gods and Monsters*

Best Actress: Cate Blanchett, *Elizabeth*

Best Original Screenplay: Andrew Niccol, *The Truman Show*



INSIDE LINES

NOT DEAD YET
When Compaq Computer bought Digital Equipment, skeptical users fretted that Compaq would cut off life support for Digital's venerable **VAX/VMS** line.

Those fears were fueled again when Datalogics, a small vendor of publishing software, put a white paper on its Web site stating matter-of-factly that Compaq would pull all VAX support after Dec. 31, 1999.

Not true, insisted Compaq, which also must have convinced Datalogics. By last week, the offending statement was gone.

GOOD DOGGY
More Microsoft courtroom troubles. Last week, the company settled with small Scottish developer Inner Workings, which sued Microsoft for using a yellow dog named **Rocky** as an animated assistant in the forthcoming Office 2000. Inner Workings has used its own yellow dog, **Lemon Dog**, in children's software for years and had even shown the character to Microsoft executives at European trade shows. Under the settlement, Rocky will still appear in Office 2000, but not on any packaging.

WHAT'S THE BUZZ?
New horizons in buzzword appreciation: From systems integrator Cambridge Technology Partners, **XRP**, for "extended resource planning," a successor to enterprise resource planning. From call center vendor Witness Systems, **BDR**, for "business-driven recording" of customer calls.

RUMOR MILL
IBM and **Compaq** are expected to announce support for Linux on March 1, the first day of the Linux World Conference and Expo in San Jose, Calif. . . . E-mail outsourcer Critical Path will announce a pact this week with **Sprint Corp.** to bundle its E-mail services with Sprint's data services. . . . Microsoft is expected to ship at least one more **service pack** for Windows NT 4.0 some time before January.

OVERHEARD
Gartner Group analyst **Ken Dulaney**, on the plethora of wireless data services announcements by Cisco, Microsoft and other vendors last week: "These companies all want to be the AOL of wireless." **Mark Yarsike**, the produce store owner who filed (and later settled) the first year 2000 lawsuit, testifying before the Senate Commerce Committee: "One thing I know is that the so-called Y2K problem is not a Silicon Valley problem. It's a Warren, Mich., problem."

ON INTERNET TIME
Time capsules just don't last as long as they used to. **MIT's Sloan School** is installing an "Internet time capsule" in its new Web site to preserve a slice of today's Web for future generations. Predictions by Bill Gates and Martha Stewart are encrypted and won't be revealed until the capsule is "opened" in the far distant future of . . . well, **2004**. But heck, news editor **Patricia Keefe** can't even wait that long for your news tips and tidbits. E-mail her at **patricia_keefe@computerworld.com**, or call (508) 820-8183.

This Monitor Fits on a Dime

THE MICRODISPLAY could be used on wearable computers, DVD players, digital cameras, camcorders, wireless phones and other display-challenged products

IF THE WAVE of the future is ever-smaller personal computing devices, what about the monitor? Most microdisplays require sacrificing image quality in favor of portability and extended battery life. But Colorado MicroDisplay Inc. in Boulder, Colo., claims to have licked those problems with its full-color, flicker-free, full-motion video display, which measures just .47 in. (diagonal) yet features a resolution of 800 by 600 pixels and low power consumption. The microdisplay can be mounted on a headset for wearable computers.

The 5th Wave

"You know, it dawned on me last night why we aren't getting any hits on our Web site."

intel inside pentium II

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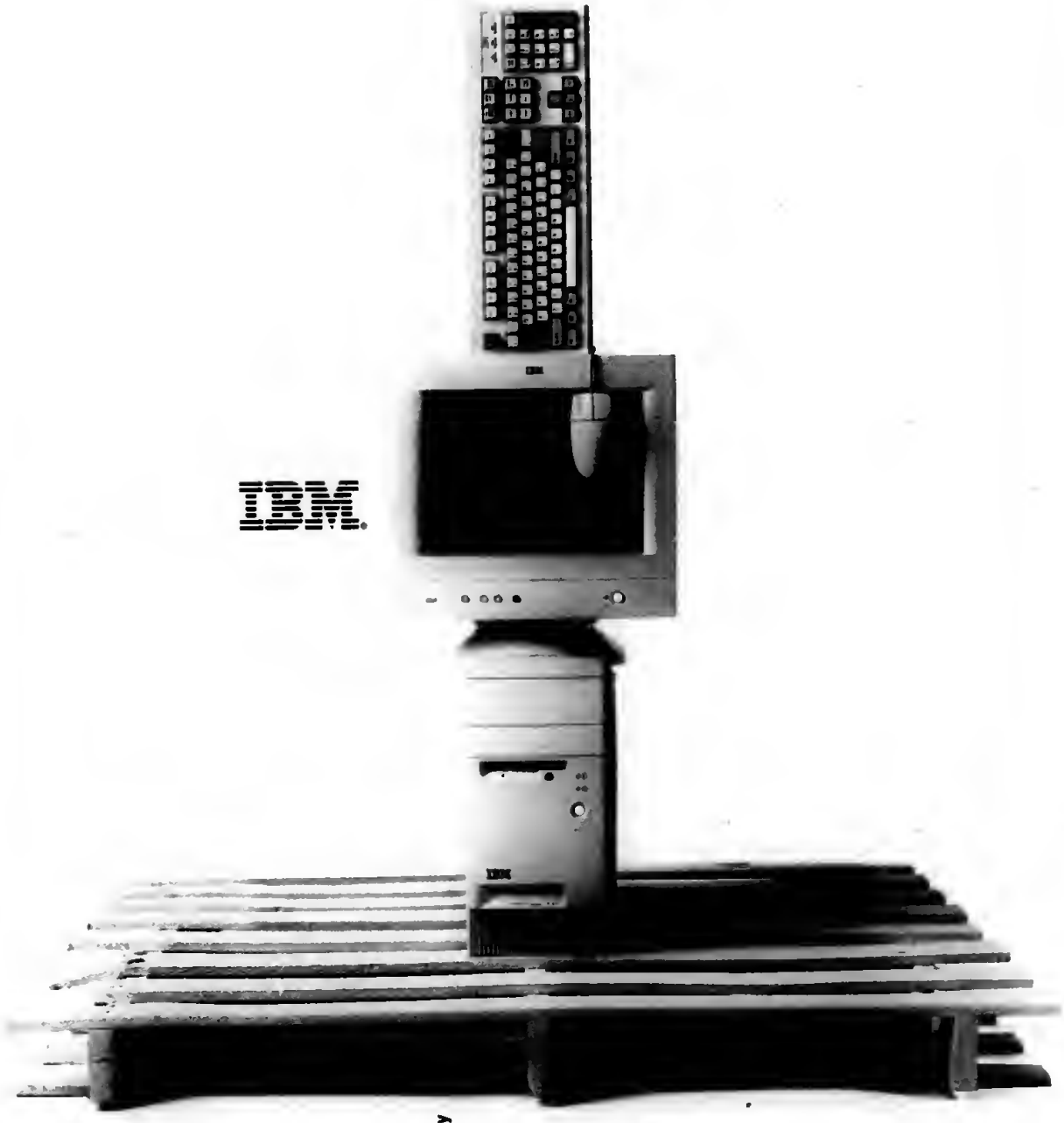

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